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MAIL RETURNS

"Tonsorial Engineering"

DEAR REVIEW:

In the issue of January 1935 I find an article by H. E. Lobdell entitled "Philatelic Engineering."

I wish to suggest that in some succeeding issue you entertain us with an article on "Tonsorial Engineering."

It seems to me that the word "engineering" is becoming quite as vague as to its meaning as is the word "value" in what its professors call the "science" of economics. . . .

BASSETT JONES, '99

101 Park Avenue
New York, N. Y.

The Review regrets that the title "Philatelic Engineering" was subject to the interpretation which several readers gave it. The title was intended to describe the topic of the article — engineering achievements as recorded on postage stamps — and taken in that sense it was appropriate. On various occasions The Review has expressed its aversion to the misuse of the word engineering, and it is a fixed policy of editorial style that the word not be applied loosely to activities of a non-engineering nature. — THE EDITOR.

That Game Nim

DEAR REVIEW:

I have run across this game [Nim] in widely separated parts of the world, but never before knew the name. I first learned of it from Richard F. Lyon, '20, who was studying graduate chemical engineering at the Institute some 15 years ago. Lyon was a brilliant chess player and mathematician. For some time he refused to divulge the mathematical basis of reckoning the moves or plays. Several of us struggled in vain with it, and finally prevailed upon Lyon to disclose the secret. I proceeded to forget all about it until some years later, when the matter occurred to mind, but the secret was again lost. I took it to one of the leading mathematicians in the Coast and Geodetic Survey office in Washington, who studied it over a few moments, asked a question or two, showing that it was new to him, then laconically remarked, "It looks like something that would be handled by addition in binary numbers." This impressed me tremendously, and I have never since forgotten the trick, although I am convinced that nobody but a lightning calculator could utilize the correct method in play. A superficial knowledge of a few simple combinations will win against anybody but an expert in the game.

ELLIOTT B. ROBERTS, '21

U. S. Coast and Geodetic Survey
Washington, D. C.

Fresh from the Textbook

DEAR REVIEW:

Mr. Sherman's letter in a recent Review presented an interesting problem, viewed by a Technology graduate of some years back. In still more recent commentaries we are given viewpoints within the school itself. However, as yet no late graduate of the Institute has presented his criticisms, criticisms which should be heard in fairness to the broadness of the question. As a member of the class of 1932, a mere neophyte in what as undergraduates we called "the outside," I modestly take it upon myself to speak.

As a premise it must be agreed that neither the industrial nor the professional world beckons to "prepared scientists fresh from the textbook." Specialization, enter the bromide, has so definitely drawn its lines among and between the fundamental sciences that within a single field of their application we find opportunities for a thousand and one professions. Without further elaboration it becomes obvious that no school, especially one stressing these sciences, can, within its necessarily limited curriculum, qualify to equip a man to enter directly a position of responsibility within his chosen field.

It becomes, then, the primary responsibility of the Institute to drill into a student the fundamentals of his (*Concluded on page 186*)

THE TABULAR VIEW

BEFORE coming to Technology to teach English, FREDERICK G. FASSETT, JR. won his laurels as a newspaper man in the purlieus of Maine and later in Boston. He has successfully developed and conducted a journalism option in first year English for members of the news and editorial staffs of *The Tech* and *The Tech Engineering News*. HOWARD R. BARTLETT has taken graduate work in History at Harvard University and he is now engaged in teaching in the Institute's Department of English and History. ¶ P. J. RULON has always been interested in the kind of problems he presents in this issue for Review readers (p. 178); in fact, for the last three or four years he has been editing a problem column in one of Boston's daily papers. In 1932 he went so far as to publish, under the pen name of Julian Longstreet, a collection of such problems, which he called "Brain Teasers." He will tell you, when pressed, that he would have been born in 1900 alongside the Keokuk Dam across the Mississippi, except that the dam was not there in 1900. In 1914 he took part in a great westward movement to California. Although history chronicles no such great movement, he took part in it, and he knows it was great. In the course of events he graduated from public high school, and began an oscillation between Stanford and the San Jose State Teachers College, which was accompanied by a cyclical oscillation of interests from engineering to education and back again, until in 1926 he received an A.B. degree from Stanford in education. At this point he shifted his study to psychology and in 1928 took a master's degree in that field, still at Stanford. His next move was to the University of Minnesota where he received a Ph.D. degree in educational psychology with a minor in mathematics. Since 1930 he has been at the Harvard Graduate School of Education, where he is now an Assistant Professor, his field of instruction including statistics, test construction, and educational experimentation.

PAGES 187–194 of this issue are given over to a symposium on business in 1935. The three papers printed are drawn from a group of six prepared for the annual New Year's conference of the Department of Business and Engineering Administration. It was planned and presided over by the Head of the Department, Professor Erwin H. Schell '12. ¶ WYMAN P. FISKE holds the degrees of A.B.A. and M.B.A. from Harvard University and the degree of LL.D. from the Suffolk Law School. He is Associate Professor of Accounting at the Institute. ¶ ROBERT F. ELDER is a graduate of Harvard University. In 1928 he won the Alvin T. Simmons prize for a paper on "Reducing the Cost of Distribution," and he has made valuable studies on radio advertising. ¶ FLOYD E. ARMSTRONG holds two degrees from the University of Michigan. He is Professor of Economics and Finance in the Department of Economics at the Institute where he has taught since 1916. Those who are interested will find it profitable to compare these papers with a similar group published in the February, 1934 issue of The Review.

THE SPIRIT OF SERVICE

THE value of a nation-wide telephone service, under one unified system, is reflected in the day-by-day efficiency of your own telephone. It is given dramatic emphasis by an emergency.

Several years ago, the worst sleet storm in telephone history swept north from Texas almost to the Great Lakes and ravaged a section 150 miles wide. Thousands of telephone poles were broken. Thousands of miles of telephone wire were snapped by the weight of clinging sleet. Telephone communication throughout the country was affected by this gap in the Middle West.

To restore the service quickly was beyond the power of the local telephone companies. Had they been forced to tackle the job alone it would have taken months and imposed a heavy financial burden. Instead, the full resources of the Bell System were thrown into the breach. From the Southwest, from New York, Pennsylvania, Ohio and the Northwest, the repair trucks started rolling into the stricken area.

Even while men were on their way, the warehouses of the Western Electric Company started shipments of tools, wire, poles, cross-arms and other needed equipment. It was only because of standardized material and standardized methods that the emergency was met and service quickly restored.

Telephone service as you know it today would be impossible without the unified Bell System.

The Western Electric Company is the manufacturing, distributing and purchasing organization for the Bell System. Centralized activity of this kind means better quality at lower cost.

BELL TELEPHONE SYSTEM

WE BUILT THE WORLD'S MEANEST DRIVE and learned how to make BELTS 1200% BETTER!

"Build the meanest drive possible — then build a belt that can take it!"

BELTS—all makes—weren't standing the gaff on high speed, high tension drives, especially over small pulleys. There were too many breakdowns. So the G.T.M.'s—Goodyear Technical Men—reported.

Goodyear accepted the challenge. Orders went out to the development engineers: "Find out what's happening. Build the meanest drive imaginable—then build a belt that can take it!"

The "Belt Killer"

So the engineers built the great grandfather of all mean drives—around, over and under a series of small pulleys that weren't any more than shafts—a back-breaking drive that packed months of wear into hours. They called it the "Belt Killer."

We tested all makes of belts—our own and competitors'—at high speeds. Five—ten minutes—they whirred around those vicious little pulleys—then pf-t-t-t! Not a belt made could stand it over *fifteen minutes!* The constant flexing simply tore them apart!

Then we went to work in earnest. Built scores of new belts. Tried new compounds, different ply arrangements. That didn't help!

We began all over. Built a belt of endless cords, laid side by side, enclosed in a stout cover, and impregnated through and through with Goodyear Rubber. On the "Belt Killer" it went. Ten minutes—fifteen minutes—an hour—all day—without a sign of breaking.

That was something like it! We built more belts, better belts, the same way. Put them back on the "Killer"—sped up the r. p. m. 100—200—300 hours those belts took that brutal punishment—*1200% longer than any previous belt!* Goodyear had found the answer!

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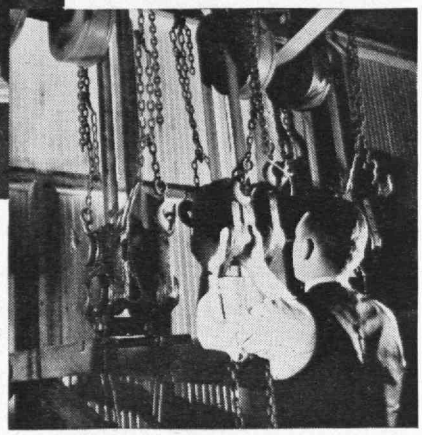
That record-breaking belt is now famous throughout all industry as the Goodyear COMPASS Cord Endless Belt—the most nearly stretchless belt made. On hard, fast drives that formerly ate up a belt in weeks, it is delivering months and



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years of uninterrupted service—cutting belt costs to an all-time low.

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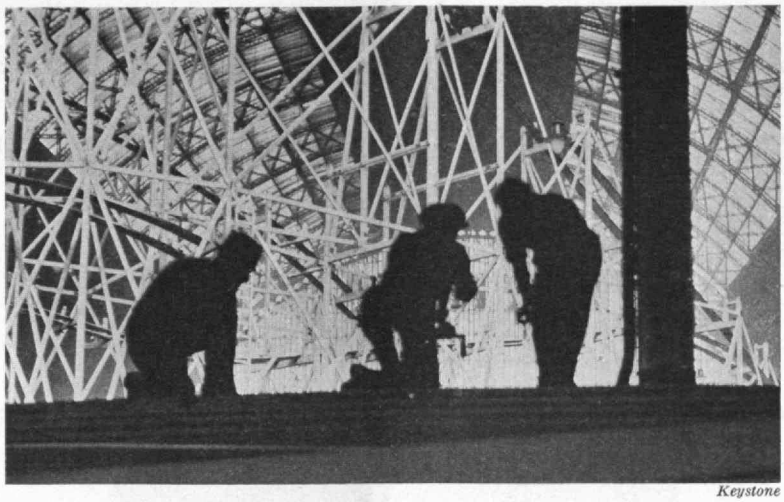

Keystone

THE TECHNOLOGY REVIEW

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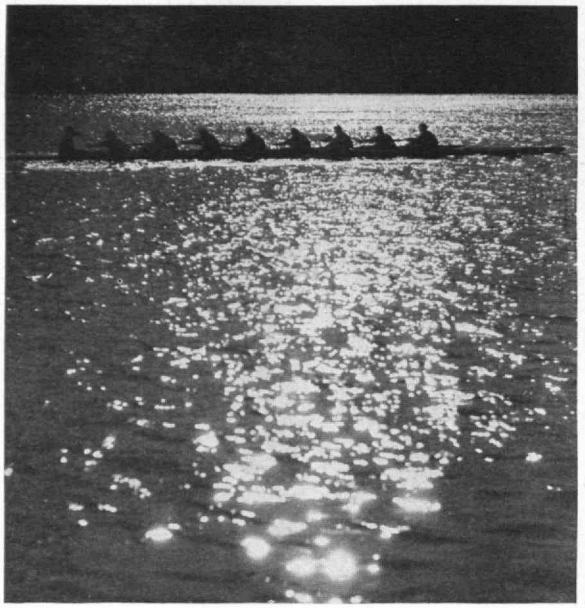

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THE
TECHNOLOGY
REVIEW

Vol. 37, No. 5

February, 1935

The Trend of Affairs

Notes and Observations

As the vistas of 1935 unfold, Americans anxious for American preëminence might take satisfaction in a number of clearly developed trends. Americans are making notable contributions to world science, particularly in medicine, physics, chemistry, and biology. The year's-end meeting of the American Association for the Advancement of Science gave glimpses of the almost feverish activities of our researchers, and of the growing social consciousness of our scientists. With seven-league boots our transportation technique is striding ahead; our air transport is the toast of the world, even as it is the cockleburr in the pants of M. Farley; and our railroads are awakening from their spell of discouragement (see page 170). And, however expensive or premature, our public works inspire magnificent engineering.

It is not amiss to note here, too, how American painters are growing in stature, and in genuine distinction. No such phantasmagoria as Pittsburgh awards can obscure the fact that in its Middle-Westerners (Grant Wood of Iowa, Thomas Benton of Missouri, Charles Ephriam Burchfield of Ohio, John Steuart Curry, of Pennsylvania who paints Kansas) and their satellites, the United States boasts a talent and a force unique in modern painting. More important in implication are the numerous canvases by unknowns that point clearly to a new generation of artists when Wood, Benton, Burchfield, and Curry shall have become Academicians.

Black against the shimmering curtain of achievement stand the negatives of American architecture and its allied engineering. American architects flubbed pretty completely the tremendous possibilities of the Century of Progress. American schools still have ill-adapted Colonial façades, relatively bad ventilation, inadequate and conventionally placed fenestration. American architecture can boast few stimuli to world architecture such as the modern house by a Swiss-American in New York (see page 168). Americans resident in other places than New York have to travel long distances to see a corner window.

Meanwhile progressive American structural engineers are watching the completion of New York's planetarium in which for the first time here the concrete shell type of roof, generally used abroad, will be employed. Professors of advanced structures are hard put to point out good American examples of the Vierendeel truss, space frameworks such as the Schwedler Dome, parabolic arched halls, thin-ribbed arches and domes.

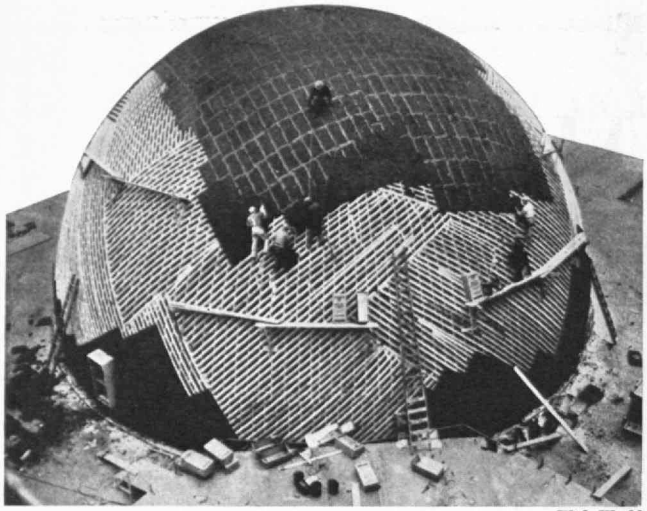
Apologists give many different reasons for this lassitude. Architectural plums, if any, they explain,

BAEDEKER

For this Section

NOTES AND OBSERVATIONS

THE NEW TRAINS



Wide World

Constructing form for concrete shell dome of Hayden (Charles Hayden, '90) Planetarium in New York. The dome, first of its kind in the U. S., is 80 feet in diameter, amazingly thin

usually fall to the well-known Olympians. These Olympians are, and usually have been, archeologists rather than architects. When they try to be modern, one remembers their archeology with nostalgia. Engineers can not be blamed — architects do not demand new structure. In defense of the architects it can be said that American engineering education does not generally offer enough mathematics to permit American engineers the intricacies of design handled with ease by our European brethren. American engineers, if really interested in new structure, might impose their wishes on the architects. It is being done in every other field.

The man in the street can feel that the incubus of post-and-lintel skyscraper construction lies heavy on both American architects and engineers. Whatever the reasons, it is clear to him that nowhere would the beneficent leaven of a kick in the pants be better applied than to American Architecture and its allied engineering.

EVERY so often life turns up one of those melodramas that even the stage at its ranting best cannot equal. Some years ago, it will be remembered, Lord Carnarvon was an ardent excavator of the tomb of Tut-ank-ahmen. Lord Carnarvon ignored the curse of the Egyptian monarch on whomsoever should molest his tomb. In Egypt, Lord Carnarvon was bitten by a spider and in England, towards the year's close, one windy night a limb fell from an oak on the ancestral estate, and in the morning Lord Carnarvon lay dead. One of life's melodramatic twists.

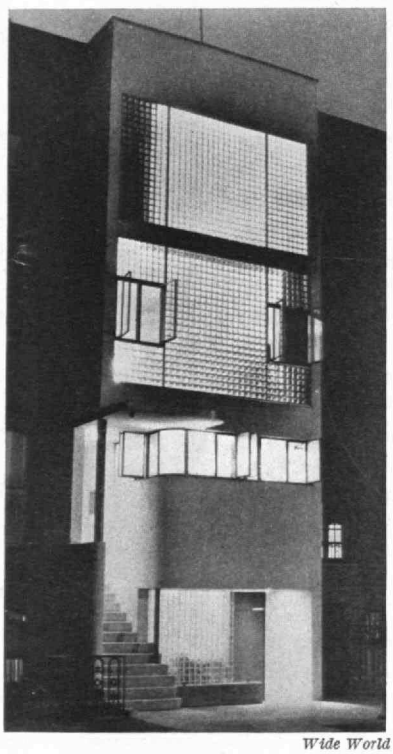
The latest of these befell in late December when on the wings of a special Christmas flight to Java, *Uiver*, KLM's finest American-built Douglas transport lay a mass of twisted ruins in Syria, less than two short months after it had leaped to air fame for its performance in the London-Melbourne Air Derby. Although the death list was slight, all Holland mourns what is regarded as a national catastrophe. The significant thing about the disaster, however, is that, so far as the 40-odd Douglas transports of this type now in service are concerned, this is the first consequential accident, and evidence by no means points an accusing finger at the plane. The spectacular nature of many plane crashes tends to obscure the safe and uneventful trips of thousands of air-transport passengers of today.

NOW that tubular steel scaffolding completely surrounds the Washington Monument in preparation for its semi-centennial cleaning, it is possible to admire the spidery beauty of this type of staging at its best. The current joke about the Democrats crating the monument to take it away is widespread; but it must surely have occurred to many who have seen the monument in its temporary cloak that it is perhaps better looking than before. With its temporary steel embellishment it seems more American, less archeologically Egyptian.

OCTOPLOIDY and Diploidy in Miastor Americana — This, Gentle Reader, was the luscious title of a paper presented at the recent meeting of the American Association for the Advancement of Science (a name mercifully reduceable to the formula *Triple A. S.*). One of our simple pleasures is to collect such titles and perhaps others would enjoy some of the additional specimens we garnered at this same meeting.

We shivered a little, for example, over *Normal Development of Drosophila Melanogaster Following Removal of Preblastodermic Oöplasm.* We haven't the slightest idea what Oöplasm is but we venture the opinion that it is an onomatopœic word for the noise that a ghost makes. Our curiosity was piqued by *Some Geometric Properties of Lemniscates and of Equipotential Curves of Green's Functions.* Who is Green, who has such functions, and do any of our own functions have *Equipotential Curves?*

Did *Seismographic Sensitivity to Tilt* have any remote relation to alcoholism, or have the tabloids heard of



Wide World

House-atelier of architect William Lescaze, New York's first residence in the "international style." The front of the upper stories is constructed of translucent glass blocks. Behind this façade of glass are various levels of rooms neatly arranged with intervening terraces. Skylights admit light which filters through glass tile into lower rooms

The Sex Ratio of the Pale Western Cutworm? The scientists, it seems, are not immune to the current preoccupation with biography and the intimate details of private lives. They spoke, for instance, of

(a) *Views of the Home Life of the Atlantic Murre*
(b) *Six Years' Records on the Singing of One Song Sparrow*
(c) *Life History of Polygonum coccineum and P. natans in Iowa*
(d) *Chief Day-Bway-Wain-Dung's Medicine Bark Parchment with His Interpretation of the Glyphs Thereon*

Somehow we feel sorry for that sparrow, not to mention Poly of Iowa. No one, not even the Atlantic Murre, has any privacy any more.

Other titles that made us want to read the papers they capped included: *Meteorology and Climatology in a Teacher's College; On the Reducing Power of Hemolymph from the Roach;* and *The Acidity of the Water of a Sphagnum Swamp.* We have always wondered about the temperature in a Teacher's College and Sphagnum Swamp Water has been, ever since our childhoods, a matter of great solicitude. And ah! the poor roach.

Somehow, we don't know why, *The Contradiction Between the Feeling-Tone of Political Party Names and Public Response to Their Platforms* reminds us of that classic sign displayed by an English farmer: *Our Eggs Cannot Be Approached.* Which, in turn, recalls two other titles collected a year ago: (1) *Induction of Egg-Laying in the Spanish Newt, Pleurodeles Waltl* and (2) *Observations on Transplanted Immature Ovaries in the Eyes of Adult Male and Female Rats.*

Let it be said that these specimens are presented not in a spirit of ridicule. The papers they represent were doubtless important and worthy, and the titles are listed merely as examples of the complexity of scientific verbiage as viewed by the layman.

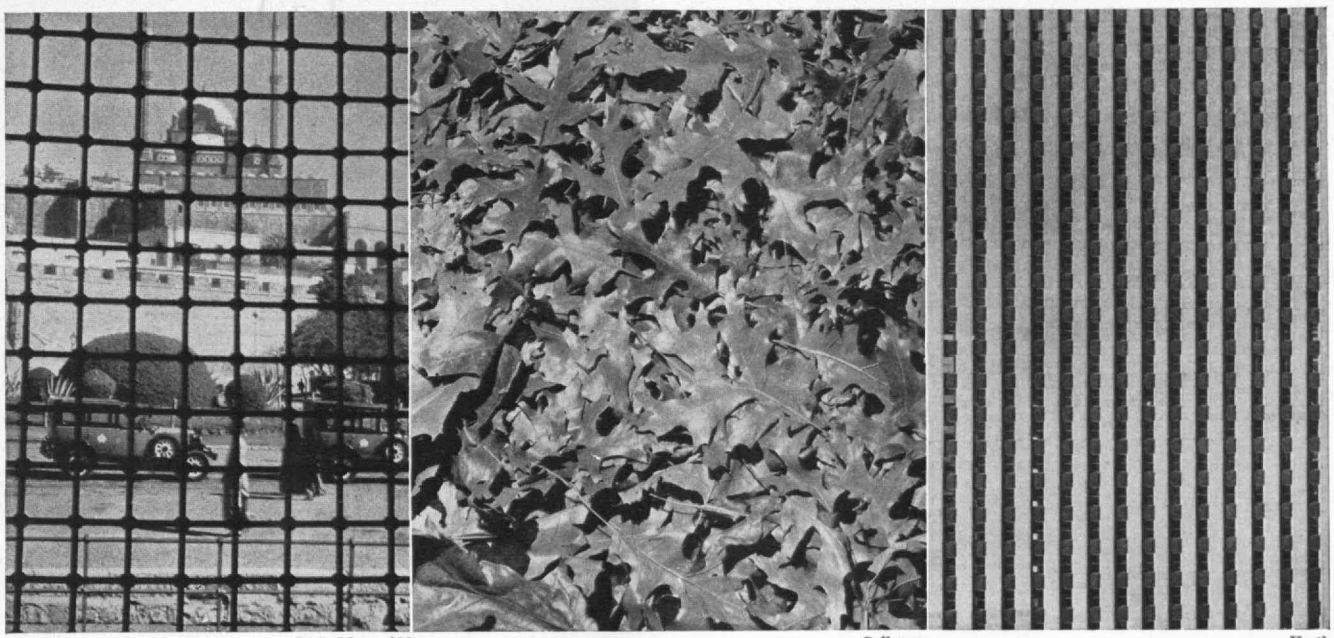
WE ALSO beguile ourselves, as we stroll along the pleasant byways of the laboratories, with the specific words of science. We even vent our prejudices in paraphrase:

> Ah, then it must be right. And yet,
> Suppose for once — suppose — Ninette —
> Deuterium were but diplogen,
> Neutrino but neutrette.

Scientific terms often sound barbarous to those who are not familiar with them. The terms of one science seem monstrous to the man who pursues another, and scientists themselves sometimes add to the confusion by choosing pedantic polysyllables as preferable to the purer and simpler English which would serve as well. It is surely unnecessary to declare that a substance has a negative coefficient of thermal expansion when one means only that it contracts when it is heated or shrinks when it is warmed. But the pompous words are, after all, used in their proper meanings, and no barbarism is committed. Nor did the author of a treatise on the *pathogenic vermiform parasite of the euphorbia pustulifera* err in the least, for his meaning was clear and unequivocal, and simpler words would not have filled his need.

It is fun to do anything easily and well. It is fun to use words which are uniquely qualified to express a particular idea. If the words are mouth-filling — like *cyclotrimethylenetrinitramine, chromatic abberation,* or *dementia praecox* — no harm is done. If they are soul-satisfying, something is gained. It may be that the scientists are like the Pharisees of the street corner; it may be that they have their reward.

Aristotle taught that goodness is fitness. An ax is a good ax if it is a good cutting tool, well balanced, easy to swing and to use effectively. He would agree that many of the words of science are good words; they are fit for their purpose. Such words, however uncouth they may



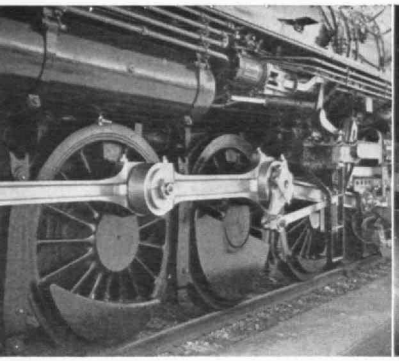
R. S. Morse, '33 *Galloway* *Korth*

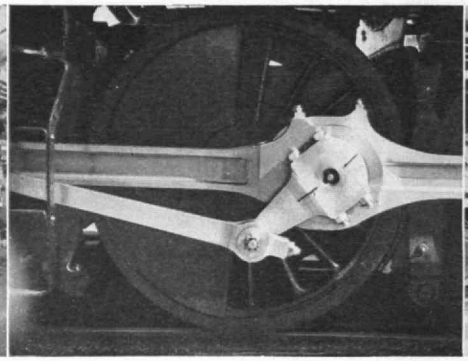
PARTERRE

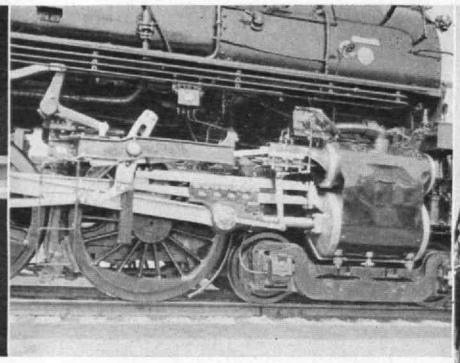
Istambul — Oak Leaves — Field Building, Chicago

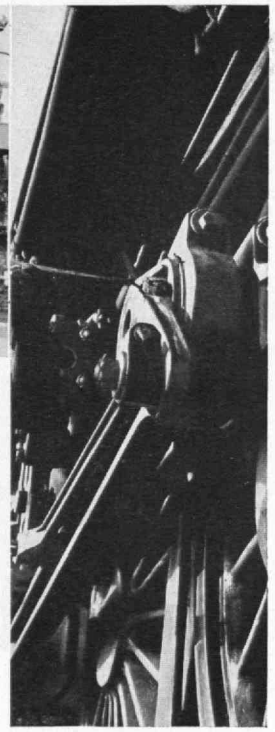
have seemed when new, have finally become a necessary part of the language; witness the words *aluminum, static, telephone, detonator, pasteurize* — and the scientists have done well to invent them for us. And at present, there being many advances in knowledge, such good words are multiplying rapidly. We need them, and are grateful for them.

But we have a very dirty glare for those men of science who take a word already established in common speech and in literature, a good word of clean-cut character and connotations, and barbarously pervert it to new uses. The building up by synthesis of a longer chain of atoms is not an *exaltation* of the molecule in any recognized sense of the word, nor is a shortening of the chain a *degradation*, as some would have it.









If *electron* is a proper name for the small particle which is the unit charge of negative electricity, then *positron* seems an appropriate term for the positive charge. But the English, knowing that Electra had a brother named Orestes, have suggested the name of *oreston* for it. And the name of *negatron* has been proposed instead of *electron*, and with considerable propriety. Americans call heavy hydrogen, of atomic weight two, *deuterium*, and its nucleus *deuton*, but the English prefer to designate the same things *diplogen* and *diplon*. There is also now *triplogen, triplon, tritium*, and *triton;* but *triton* has for two decades been one of the names of *trinitrotoluene, trilite, tritol*, or TNT. The fittest of these will probably survive (which is merely an inductive inference).

If Alabamine hodoscope, could azochloramid?

Diesel Dilemma

JUST about 12 months from now we expect to begin writing Chapter I of an answer to these questions: Is a streamlined train like Burlington's *Zephyr* or Union Pacific's *M-10001* a handsome, costly toy and a passing fancy, chiefly valuable as an advertising stunt; do such Diesel-powered units, with their apparent capacity for greater speeds at less expense, foreshadow an almost completely revolutionized railway system; or, to what extent and under what conditions may such units be expected to replace existing equipment?

Zephyr last summer averaged 77.5 m.p.h. for 1,015 miles; in October *M-10001* crossed the continent in less than 57 hours, and averaged 60.5 m.p.h. for 2,298 miles between Los Angeles and Chicago. For 508 miles, between Cheyenne and Omaha, *M-10001* averaged 84 m.p.h. Moreover, the total fuel bill for its transcontinental run is said to have been but $83.

It is one thing to establish new railroad speed records under prearranged favorable conditions, with a clear right of way, switches spiked down and battalions of crossing guards; and a very different matter to fit into scheduled passenger service minus such special aids. The latter calls for extra qualities, many of which internal-combustion trains may possess, and which they are on the verge of an opportunity to demonstrate on an international scale.

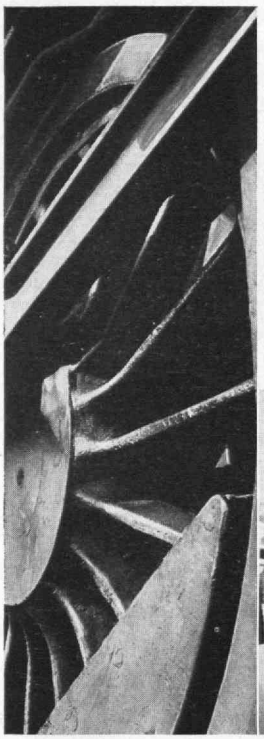
The *Flying Hamburger* (described in some detail in The Review for March, 1933, p. 218) has been successfully operating day-in-day-out since May, 1933, on the 178-mile Berlin-Hamburg run at an average of 75.8 m.p.h. We have at this writing also the experience of a brief few months of regular service maintained by the *Zephyr* between Lincoln, Neb., and Kansas City. This is a 250-mile run on which the 200,000-lb. *Zephyr* has replaced 1,600,000 pounds of previously used equipment and cut the schedule almost two hours. The *Nord* of France has also placed in service the first of the new Maybach-engined, Diesel-electric trains, which are to maintain an express service between Paris, Lille and Turcoing.

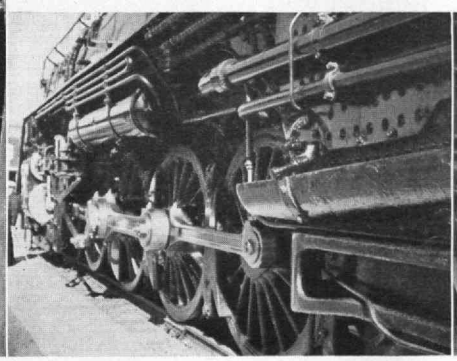
Before long, however, around a dozen Diesel-powered light-weight trains will be in service on American roads: on the Santa Fe, the Gulf, Mobile and Northern, New Haven, B.&O., B.&M., and Illinois Central, as well as the present units on the Philadelphia and Reading, the Burlington, and the Union Pacific. Their types will vary and the best brains of the many manufacturing companies interested in their construction include the staffs of Pullman, Budd, Winton Engine, Goodyear-Zeppelin, Westinghouse, and others, besides the executives of the railroads who will use them. *Deutsches Reichsbahn* will also put into service eight additional *schnelltriebwagen* patterned after the *Flying Hamburger*, and the *P.L.M.*, as well as the *Nord*, looks forward to a trial of the Diesel's possibilities.

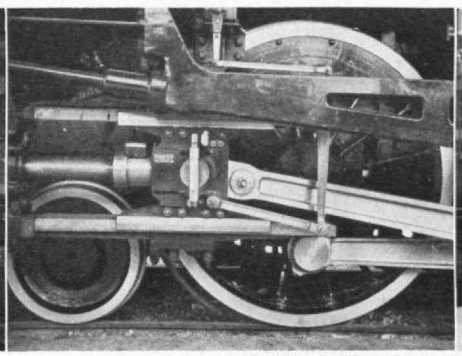
Thus actual comparative operating data on Diesel-powered trains will soon begin to accumulate in sufficient quantities to be really useful. The admittedly low fuel cost on a record run, for example, is hardly

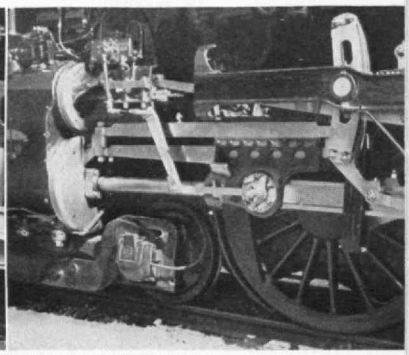
the whole story any more than the gasoline bill would be the sole expense of keeping a high-priced automobile. Soon we will have available also further actual figures on operating costs of an electrified system, for the Pennsylvania's conversion to that method between New York and Washington is practically completed.

By autumn, therefore, preliminary briefs of the three-cornered argument on railroad motive power — internal-combustion vs. steam vs. electrification — may be drawn on the basis of facts rather than impulse or special pleading. By that time, or perhaps sooner, we should have an idea whether the public likes to ride the Diesel trains after their novelty has worn off. Then, too, we may be able to estimate how much of the riding on these new trains is done by people diverted from parallel and competing lines not so equipped, and how much of it is the result of general improvement in business conditions. These, of course, will be the acid tests. Already the Burlington's *Zephyr* on the Lincoln-Kansas City run is reported as earning $13,230 per month as contrasted with $1,080 for one of the steam trains which it replaced. This is startling indeed and, if the contrast is maintained, it would indicate a very promising future for the newer type of motive power.









Sequence by W. R. Power, Jr., '32, and C. E. Patch, '02

"Streamlined," commonest of adjectives accorded these trains, is one of those mystic words which every now and then the public takes to heart in a big way. Almost any object to which it can be applied supposedly thereby acquires some hitherto unsuspected merit, even sanctity. Used in connection with Diesel-powered trains, with steam or electric locomotives, coaches, or other forms of railway rolling stock, "streamlining" simply implies a smoothing up of corners and a whittling down of projecting parts to reduce wind resistance.

It is an old custom and one which European locomotive designers have practiced many years by concealing gadgets under a blanket of steel plating. American railroading has given comparatively small attention to its possibilities for steam or electric locomotives, and only within the past few months the New York Central and the B. & M. managed to unveil with some ceremony what were accepted in the public prints as "ultra-modern streamlined" steam locomotives. Coincidently the Pennsylvania displayed the first of its 57 "streamlined electric locomotives." The new steam machines were essentially, as railroad men freely admitted, engines of standard types, hooded by steel apron-like coverings, the better to combat wind resistance. Whether all steam locomotives from now on will come to wear such metal pinafores depends upon the economic justification of the idea. Their introduction at this time must have been conceived largely with an eye to capitalize on the present-day craze for the "streamline" label — a mania which is not confined to the United States, for a Japanese standard steam locomotive, similarly rigged and advertised, has also appeared, and the smoothed-up Jap engines which draw the new "streamlined expresses" of the South Manchurian between Dairen and Hsinking are spreading it to the Asiatic mainland.

The idea of treating a train as a unit in an attempt to reduce the effect of air resistance also is not exactly new. The B.&O. tried it in 1900 by fitting five passenger coaches and a baggage car with shields and other supposedly efficacious devices. Windows were flushed with the surfaces of the cars, the sides of which were extended downward to cover the trucks. The rear car was tapered and in many other respects the ideas embodied are paralleled today in the Diesel trains. Air conditioning as we now know it was then unheard of but the B.&O. train was provided with a system of ventilating passages so as to permit the windows to be kept closed. Despite all these sundry precautions, the locomotive was given no shield, apparently being left to buck head winds as best it might.

Shaping head- and rear-ends of trains, and removing projecting parts, so as to cut down wind resistance, ought to make for a saving in power. This has been demonstrated by aerodynamic research, and in many tests of railway equipment dating back to the B.&O.'s venture and to the cars which McKean built in the Omaha shops of the Union Pacific in 1905. It is also one opinion about the effect of streamlining which is not in conflict with the rudiments of ordinary common sense.

But, "there is a popular misunderstanding that train friction resistances at high speeds are relatively unimportant in comparison with air resistance. . . . For trains of approximately six coaches at 100 m.p.h., the friction resistance may be more important than the air resistance. Even at 125 m.p.h. it will be found that a conventional train of 1,000 net feet has a total

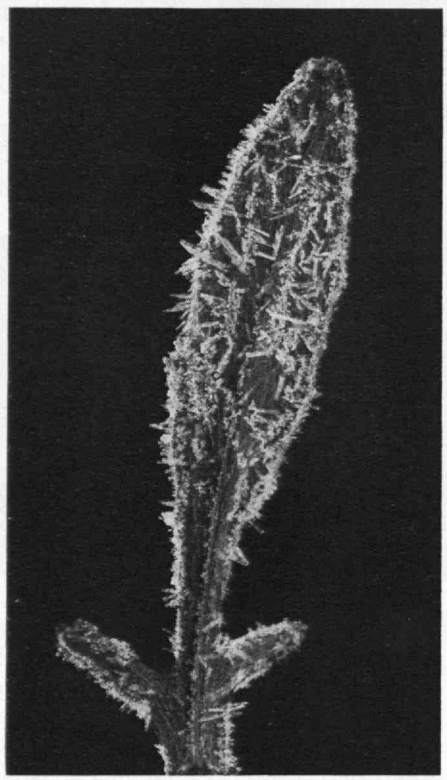
friction resistance only about 20% less than the air resistance. . . ."

The above is quoted from a paper presented recently to the New York Railroad Club by G. I. Wright and P. A. McGee of the Reading. Their analyses of the motive power requirements and economies involved in running trains of various sizes and weights at high speeds, 70 to 125 m.p.h., is not only one of the latest contributions to that subject, but one of the most thoroughgoing yet rendered.

They consider "net train length" to be as important a factor as "ton miles" or "passenger seat miles." They admit that "air resistance is of great importance at high speeds and for short train lengths (*M-10001's* is only 376 ft.) is the controlling factor in train resistance. With long trains, journal and so-called flange resistance at high speeds may be as important as air resistance so that train weight becomes an important factor with long trains. . . . By a radical reduction in the weight of passenger coaches the saving in frictional resistances may be greater for trains exceeding 500 feet in length than the possible saving with reduced air resistance for speeds up to 100 m.p.h."

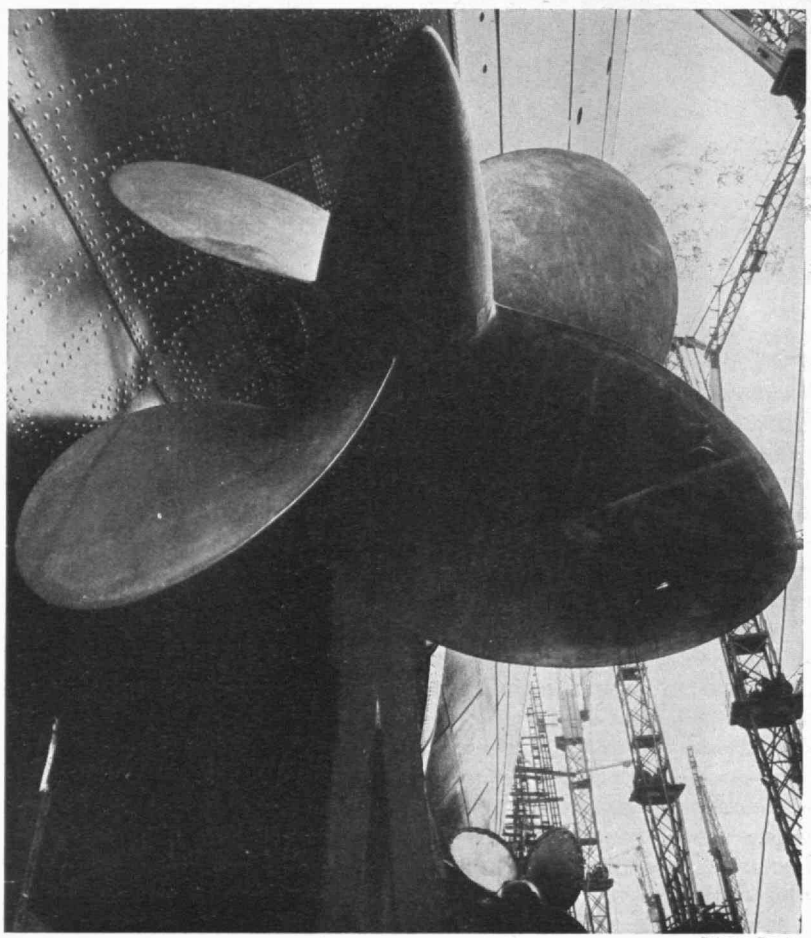
If we assume that the Diesel trains built up to the end of 1934 have been essentially "working models" and that their dimensions have been kept down to cut the experimental costs, then the opinions of Messrs. Wright and McGee seem particularly apposite. Saving in the "weight of passenger coaches" by using special alloys of steel and other metals, through welding and other modern methods, is not the exclusive prerogative of the Diesel trains. The New Haven, for example, has just acquired 50 new coaches, each weighing 107,500 pounds compared with the 135,000 to 150,000 pounds of previous cars.

There are many indications that the Diesel trains will not long be kept below the standard scale of other passenger-carrying equipment. What C. F. Kettering disclosed to the National Academy of Sciences at Cleveland about the 3,600-h.p. Winton Diesels points the way toward adequate motive power. These are four times as powerful as the motive equipment of the *M-10001*, and fully comparable with the capacity of steam or electric locomotives in main-line usage. Then, too, there is the policy of railroad operators to try out Diesel trains as competitors against steam and electricity in limited train services. Thus the Santa Fe expects that its new internal-combustion train will make a round trip once a week between Chicago and Los Angeles as the *Chief*. Finally, the public hates to be cramped, and consequently Diesel trains must expand to proportions which are thought of as the normal inside measurements for a Pullman car



Science Service

Above: *Frost crystals clinging to a leaf as photographed by Cornelia Clark*



Science Service

Left: *35-ton pinwheel. One of the four great screws of the Cunard-White Star liner,* Queen Mary, *now a-building*

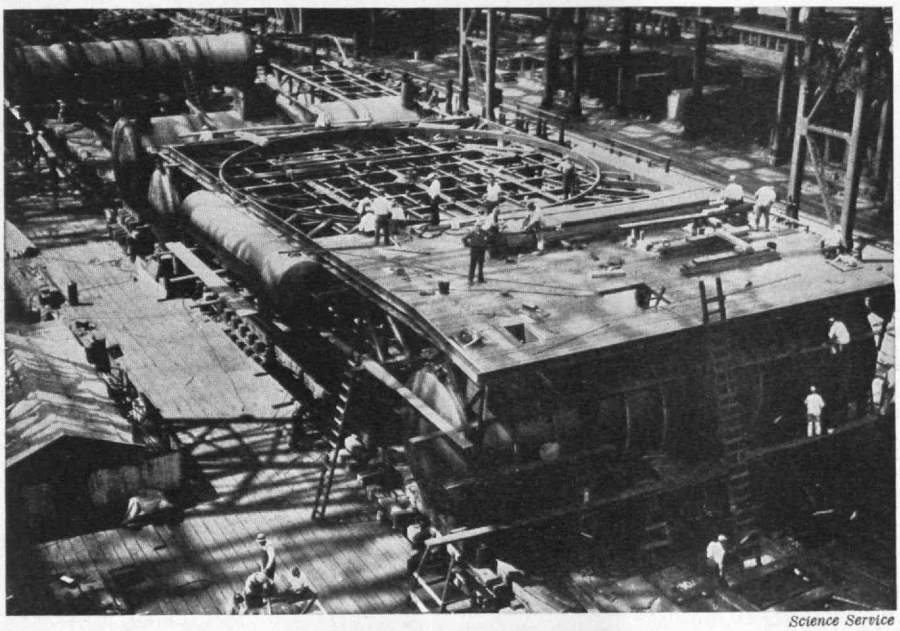
Sheer speed, exemplified by the spectacular special runs previously described, is another attribute of light-weight trains which hits the public in the eye. It is indeed rather startling to read that the *M-10001* cut 14½ hours off the previous coast-to-coast rail record established by a steam-drawn special at the time of the San Francisco fire, and nearly seven hours off the time made by the train Walter Scott chartered in 1905 to take him from Los Angeles to Chicago. Steam, it might be argued, has made much progress since those days and, given present-day engines and rolling stock to run on present-day roadbeds, plus all the extra attention *M-10001* had, steam might decidedly improve its showing of 30 years ago.

Speculation on that score, while interesting, is, of course, unproductive. "Death Valley" Scotty has passed to his reward and all eccentrics nowadays are broke or take planes for their thrills. Air services would also be invoked should an emergency be again precipitated by another earthquake, and hard-headed railroad executives are not interested in spending money to assault transcontinental rail records with steam power.

They are, however, vitally interested in whether steam can meet the speed threat of the Diesel trains in regularly scheduled services. Thus they derive comfort from the experience of a C., M., St. P. & P. train, supposed to run from Chicago to Milwaukee — 85.7 miles — in 90 minutes according to the published timetable. One fine day last summer the steam engine, which was hauling this train weighing about four times as much as any internal-combustion train then built and was capable of seating two to three times as many passengers, was opened up. It got to Milwaukee in 67 minutes, 35 seconds, at an average of 76.07 m.p.h. For nearly 69 miles of the run, outside yards, it kept to a sustained average of almost 90 m.p.h.

The ultimate effect of the Diesel-powered trains on American railroading depends, therefore, on something more than record speed runs, or "streamlining," or novelty, or theoretical arguments as to comparative costs. It is now really a question of how they work out in actual service, and that is what we are going to have a chance to observe during 1935.

Their safety has been challenged, and it is by some considered doubtful whether it is feasible to run any trains at these super-speeds until our present road-beds have had grade crossings eliminated and other features adapted. The fact is, however, that the Burlington, for its 6½-hour, Diesel train service between Chicago and the Twin Cities — about a third faster than present steam schedules — has carefully studied its right of way and does not believe any fundamental



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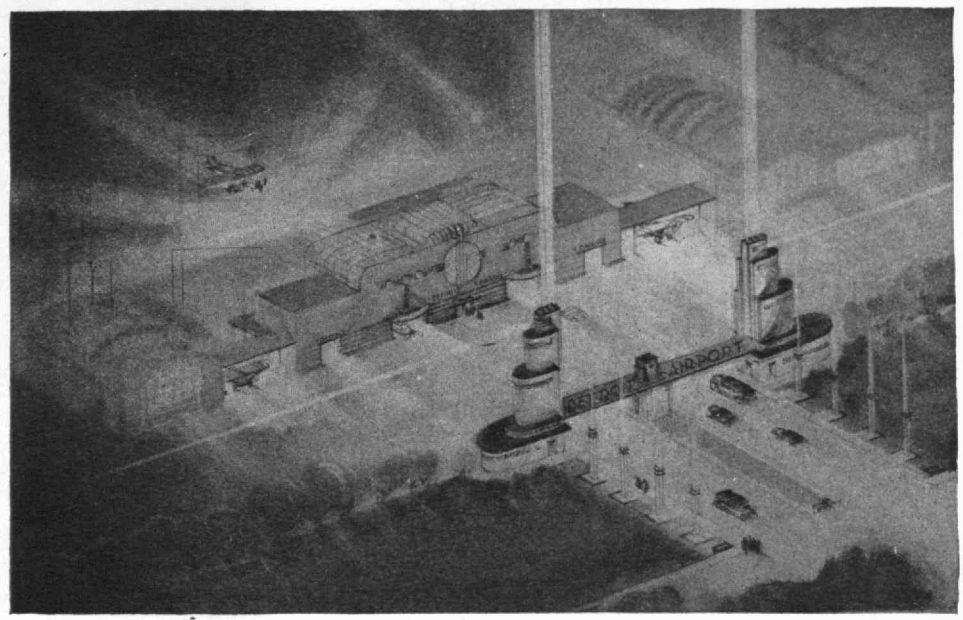
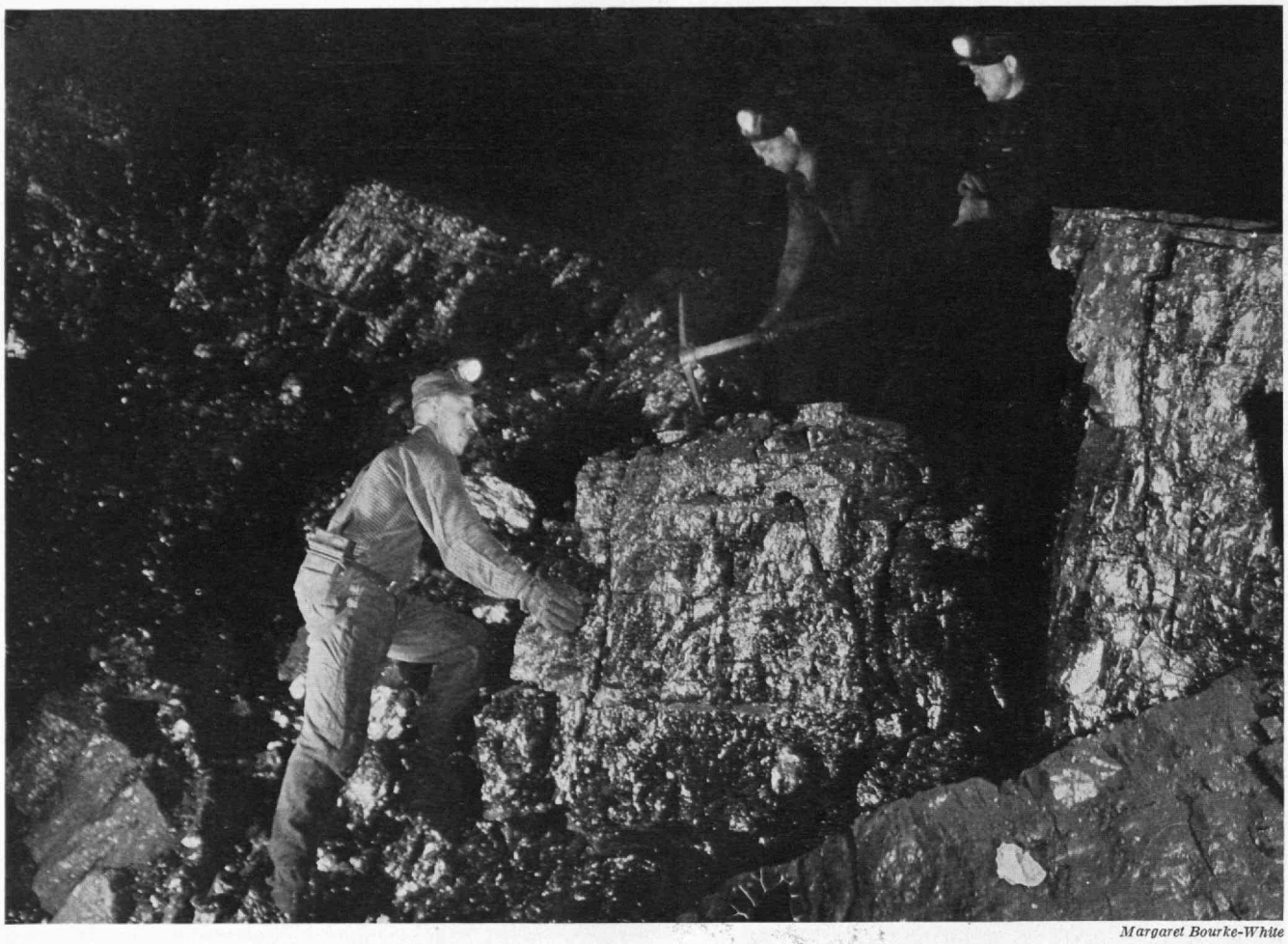


Above: *Building New York's floating landing ramps for seaplanes. Each ramp is 89 feet long, 56 feet wide and weighs 170 tons complete. Two steel tanks each 12 feet in diameter furnish the buoyancy for the landing unit. A motor-operated turntable in the center of the top surface provides means of turning the planes about for take-off. In operation the seaplane taxies onto the surface of the turntable which is one-fourth submerged by partially flooding one tank. The ramp is then raised to level by forcing the water from the tank with pneumatic pressure*

Right: *"Entrance to an Airport." Hypothetical design executed by a student in Technology's School of Architecture*



Margaret Bourke-White

changes will be necessary in the character of the present track or maintenance methods.

Apparently the Twin Cities-Chicago runs are to be important cross-country proving grounds in the Diesel vs. steam argument. Last month, in contrast to Burlington's Diesel entries, the Chicago & North Western (noted for its safety record) introduced *The 400*, so-named because it covers the 410 miles from Chicago to St. Paul in 420 minutes — nearly three hours under the old schedule.

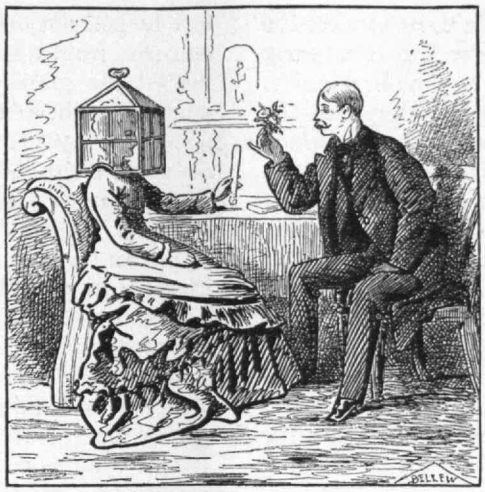
This train, drawn by an oil-burning steam locomotive, isn't "streamlined" and it isn't "light-weight." Running on its reballasted roadbed, many of the curves having been super-elevated, *The 400* has for the moment the fastest schedule of any American train for runs of over 200 miles.

To make possible the record of *The 400*, the North Western spent $100,000 in research and preparation. *The 400* touched 91 on its record breaking trip, clicked off 81 miles in 67 minutes.

Assuming that the difference as to speed between the Diesels and steam-powered units may not be so great after all, if the public finds that the Diesel trains are cleaner and more comfortable to ride in, their chances for permanency are good, for when the public registers a clearly favorable vote on a comfort feature the railroads take heed and act.

The rapid installation of air-conditioning apparatus is the best example of this: 650 air-cooled or air-conditioned cars were in service in the summer of 1933; 2,320, last summer; 21 western and southwestern roads alone will so equip 2,500 more this year.

Flagstaff base modeled by a student in the Institute's School of Architecture. Modeling is an important part of the architectural curriculum — it contributes to the power of visualization in three dimensions



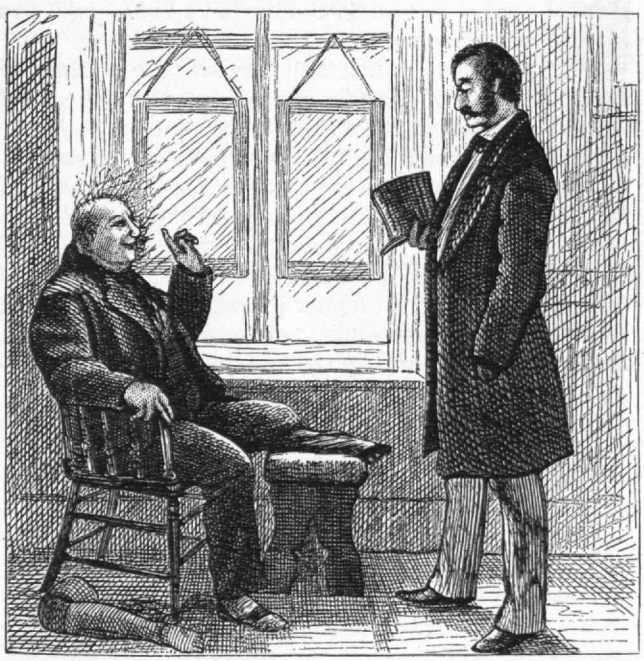
A Morning Call — Blue-Glass Period. The young lady is much obliged to Mr. von Blanck for his gift of fragrant Flowers, but the poor girl cannot smell them until she retires for the evening and takes off her Cucumber Frame. — Harper's Bazaar, *March 24, 1877*

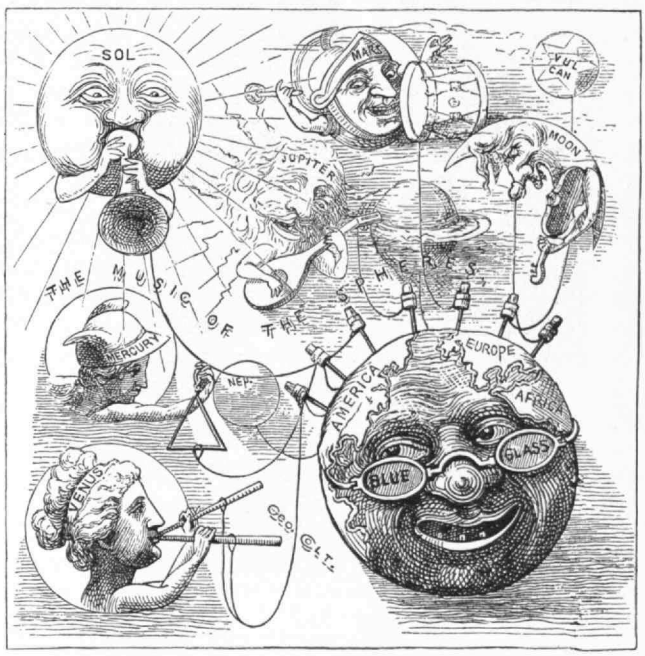
Pleasonton's Panacea

The Blue-Glass Mania of the 1870's

By Frederick G. Fassett, jr., and Howard R. Bartlett

SOME two generations ago, when the telephone was a novelty, bustles were the convention, and newspapers confined themselves to single-column headlines, science and speculation came to grips in Boston, in a controversy short in duration, but great in geographical extent, and superlative in current interest. From San Francisco to Boston, in Canada, in England, and in Germany, newspapers and magazines reflected in crowded pages the popular conviction that nearly all the ills of humankind could be cured by the simple expedient of basking in rays of sunshine that passed through a closed window and then through a pane of blue glass. Those rectangles of blue glass which, framed in wood, with screw eyes for suspension, turn up now and then in the attics of mansarded dwellings are mute heritages from a fad which in its day outdid the Coué-ism of a few years ago, or the Tom Thumb golf of a still more recent day. They are also testimony to a brief boom in glass making which found Page, Harding and Company of Berkshire, Mass., and Hartley and Company in





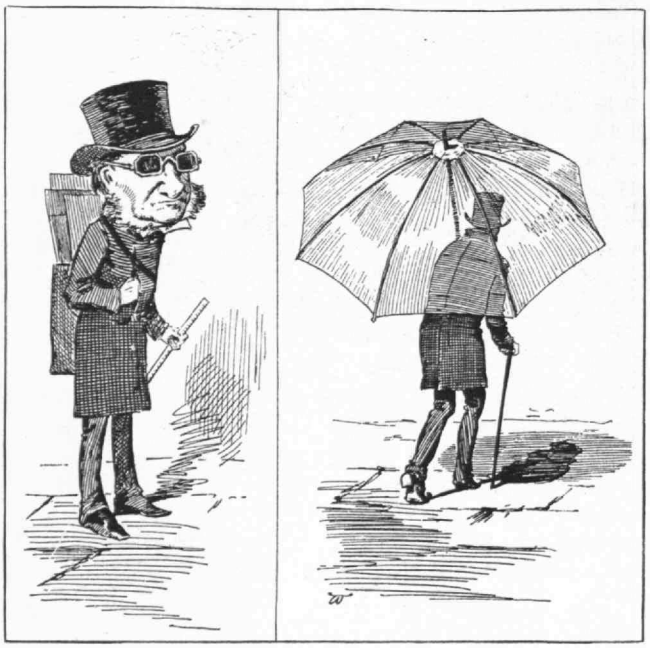
Left: *Major (with remnant of his leg on stool): "Why, I am trying this Blue-Glass Remedy to see if I can't grow a new leg on. See, I have already sprouted the hair on my bald head."* Right: *The telephone. The music of the future (not after Wagner). Serenade to Mother Earth. [Note that the earth is wearing the fashionable blue glass — and looking pretty sick about it, too.]* — Harper's Bazaar, *April 14, 1877*

Sunderland, England, working double shifts to meet the demand for the cerulean panacea; as well as to an early instance of journalistic exploitation of popular whimsy.

To the Institute, there is particular interest in the craze because of the fact that the objective science which put an end to it was that of Thomas Gaffield, Boston glass merchant, early friend of the school, and member of its Corporation from 1896 to 1900.

Speculation made its bow in the person of General Augustus J. Pleasonton, a native of Washington, D. C., and graduate of West Point, who had served as brigadier general of the Pennsylvania militia during the Civil War. On May 3, 1871, at the invitation of the Philadelphia Society for Promoting Agriculture, the General presented before the organization a memoir "On the Influence of the Blue Colour of the Sky in Developing Animal and Vegetable Life." "I may premise," said he, "that for a long time I have thought that the blue color of the sky, so permanent and so all pervading, and yet so varying in intensity of color, according to the season and latitude, must have some abiding relation and intimate connection with the living organisms on this planet."

The memoir thus prefaced was a *résumé* of experiments which had engaged the General for the decade prior to his appearance before the society. The first of these had been the erection of a cold grapery on the Pleasonton estate in the western part of Philadelphia. In glazing this greenhouse, its owner had caused every eighth row of glass on the roof to be of violet colored panes, alternating the rows on alternate sides of the roof, "so that," he said, "the sun in its daily course should cast a beam of violet light on every leaf in the grapery." Vines planted to prosper under these auspicious conditions promptly did so; "the gardener was kept busy in tying up the new wood which the day before he had not observed." Robert Buist, Sr., the horticulturist from whom Pleasonton had secured his vines, visited the grapery at intervals, and was unfailingly amazed at the remarkable display of foliage and fruit put forth by his wares. By September of 1862, for instance, Buist said to the General that 1,200 pounds of grapes hung on the vines. He would not, however, he declared, publish that fact, for no one would believe it.



More Results of the Blue-Glass Discovery. LEFT: *A physician of the near future taking breath between his cries of "Glass put in!"* RIGHT: *A wise man who carries a blue-glass umbrella when the sun shines. — New York* Daily Graphic, *February 20, 1877*

As an amateur of natural philosophy, General Pleasonton was, of course, encouraged by this start. The vines became a magnet for sight-seers, and at the end of nine years had shown "no signs of decrepitude or exhaustion." His curiosity thoroughly aroused, their owner was "induced to make an experiment with animal life."

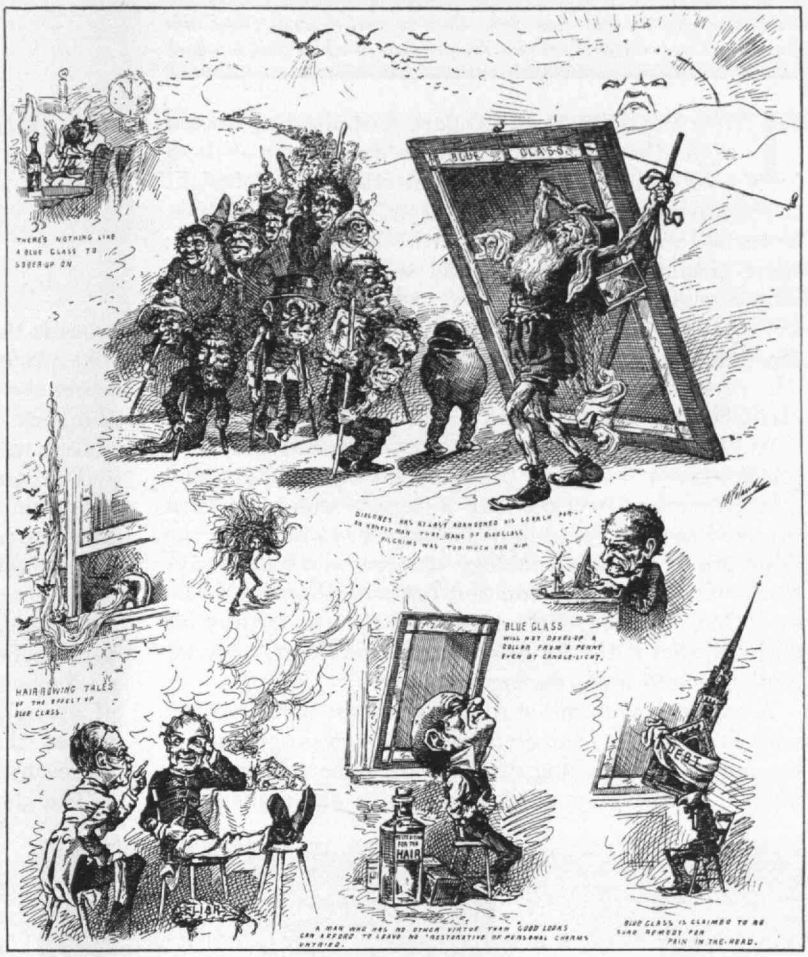
This commenced with the building of a piggery containing two pens, the first of which was glazed with white, and the second with violet glass. Three sows and a boar were placed in each pen. The sows to be violet-lighted weighed in the aggregate 122 pounds on November 3, 1869; on March 4, 1870, their weight had increased 398 pounds to a total of 520. Meanwhile the other sows, poor relations, since they were of the same litter, had increased their aggregate weight from 144 to 530 pounds, a gain of 386 pounds, 12 less than that of the porcine *protégées* of natural philosophy. The boar under the violet glass in the same time grew from 45½ pounds to 170 pounds, an increase of 124½ pounds, which suffered badly by contrast with his unpampered brother's gain of 151 pounds from 59 to 210. The General, however, explained this unfavorable result by the fact that the ordinary boar was heavier at the start, pointing out that the rate of increase of the violet-lighted boar was faster than that of the other. From this experiment, Pleasonton drew increased faith in the glass, to be confirmed for him in the following year by the experience of an Alderney bull calf which, born puny, grew at a great rate while confined in a blue-glazed pen for about four months.

That ingenuity which had devised the scheme of alternate strips of glass for the grapery was not baffled at finding a seemingly scientific theory to explain the achievements which the blue or violet light apparently worked. General Pleasonton was a man of active and fertile imagination, and thus possessed the first requisite of the speculative philosopher. To him, the diamond was probably "the product of the decomposition of carbonic acid gas in the higher atmosphere by electricity, liberating the oxygen gas, converting it into ozone, fusing the carbon, and by the intense cold there prevailing, which is of opposite electricity, crystallizing the fused carbon, which is precipitated by its gravity to earth."

The mystic powers of electricity fascinated him; he found them everywhere. "Every act of combination in respiration, every movement and contraction of organic tissues, every change in the form of matter involve electricity," he told the Society. It was in the application of this fiat that the General came to grief, for, as he saw it, "Friction even of two pieces of dried wood excites combustion by the evolution of hydrogen gas which bursts into flame when brought into contact with the opposite electricity evolved by the heat." To what

he named the "repellent affinity of electricity," the Society learned, "we are indebted for the expansive force of steam whose power wields the mighty trip hammer, propels the ship through the ocean, and draws the train over the land — and to the opposite electricities of the heated steam and the cold water introduced into the boiler to replenish it, do we owe those terrible explosions in steam boilers whose prevention has hitherto defied human skill."

Essentially, the General's theory rested on his idea that blue and violet rays excite electricity by which the carbonic acid gas evaporated from growing plants is decomposed and oxygen, therefore, is liberated to be absorbed again in maturing plant life. "This," he said, "is just what I think is done by the *blue light of the firmament.* If not itself electro-magnetism, it evolves those forces which compose it in our atmosphere and applying them in early spring, when the sky is bluest, stimulates the active energies of the vegetable kingdom, by the decomposition of its carbonic acid gas, supplying carbon for the plants and oxygen to mature it." In later versions, the General's hypothesis underwent various changes, with electricity somehow generated playing an important if varied rôle.



The lame, halt, and blind hail the blue-light millennium. — *New York* Daily Graphic, *February 15, 1877*

Issued in a pamphlet at Philadelphia in 1871, the General's conclusions excited little enough attention. Five years thereafter, in 1876, he republished the pamphlet, in blue ink and on blue paper, issuing with it a second essay of some 200 pages — a mélange of speculation which led him to disagree violently with Newton, Tyndall, and other men of science, and to set forth all sorts of theories about all sorts of subjects. Perhaps because the book stirred up enough popular interest to justify it, perhaps simply because they lacked other matter, the newspapers seized upon the General and his panacea, and in succeeding months exploited them thoroughly. The press of the 1870's was no more venal than the press of today, and the story had everything calculated to sell copies; its appeal was to a basic human instinct; the method of satisfaction which it presented was absurdly simple; results already claimed were spectacular.

James Gordon Bennett had left behind him the tradition of never missing a chance of a story, and hence the New York *Herald* was to the fore in publicizing Pleasonton, running some four columns concerning him and his experiments in the issue of April 22, 1876, shortly after the appearance of the book. A month later, the *Herald* still had the field practically to itself, and when the world of news went into its summer drowse, the Pleasonton story lay quiet. But in the winter of 1876–1877, especially during the first three months of 1877, Pleasonton, blue glass, and their critics monopolized space in Philadelphia, New York, Chicago, and finally in Boston. Interviews with the General, letters from his followers, and reports of cures worked by his method were the principal forms which the story took.

A representative of the New York *World*, interviewing the General in February, 1877, "found him a very corpulent and affable old gentleman with snow-white hair and beard," who explained the principle of his discovery by saying that "the electro-magnetism developed by the passage of the sun's rays through plain, transparent glass associated with blue glass possesses wonderful curative powers." The cure was "so essentially a cure by God's unlimited elements" that the General had no intention of seeking pecuniary return from those using it. The interviewer summed up matters in a paragraph which the General approved:

"Anyone suffering from a local disease is simply to obtain window panes of dark Mazarine blue, French the best; place it in front of the ordinary plain window-glass, so that the light will pass through the blue immediately upon coming from the ordinary glass, the diseased part to be directly exposed to the blue rays. This treatment is particularly efficacious in all diseases of the spine."

The grapes, the pigs, and the Alderney bull still drew attention, but during this stage of the furor, the effect of the rays on human beings was more prominent in the news. Rheumatism, hemorrhages (*Continued on page* 196)

A Canapé of

Mental Appetizers, Amusing and Wits and Confound-

By P. J.

Parable of the fly who flew from nose to nose — and of the coin flippers. The bouncing ball and the problem of which ball is which

TWO bicyclists 20 miles apart started riding toward each other just as a fly on the nose of one of them took off in the direction of the other, flying straight to the nose. As soon as the fly arrived at the second nose, he turned about and returned to the first bicyclist's nose, there turning about again, and so pursuing his oscillatory course until finally the two bicyclists collided, killing the fly. Both bicyclists went at the same speed, ten miles per hour, and the fly flew 15 miles per hour. The problem is, how far did the fly fly, as a total of his oscillations back and forth?

At Stanford University, a graduate student of mathematics, given the above problem, sat down with pencil and paper and worked out a series, which he then summed to infinity, to find the answer: 15 miles. In the same group was a psychology student who had always had trouble with mathematics, but who observed, as he said, that "the bicyclists must have been under way for an hour, and if the fly flew 15 miles per hour, he must have flown 15 miles during the hour."

A nationally famous statistician, whose name we will mercifully refrain from mentioning here, was approached by one of his admiring disciples with the following innocent query: If you toss five coins simultaneously, what is the probability of obtaining exactly two heads? The professor-statistician wrote on a piece of scratch paper the numbers 1, 5, 10, 10, 5, 1, and, fastening upon the third number in the series, replied that the probability was represented by the fraction 10/32.

The student nodded gratefully, and then asked, still "innocently," his second question: In tossing these same five coins, what is the likelihood that three or more of them shall exhibit the same face, either heads or tails?

This seemed to require more scratch paper than the first question, but in due time the answer was forthcoming from a summation of the numerators of the coefficients of the binomial expansion of the fifth power of $(p+q)$, where $p=q=\frac{1}{2}$. "That probability," reported the authority, "amounts to certainty, and is represented by the numerical value 1."

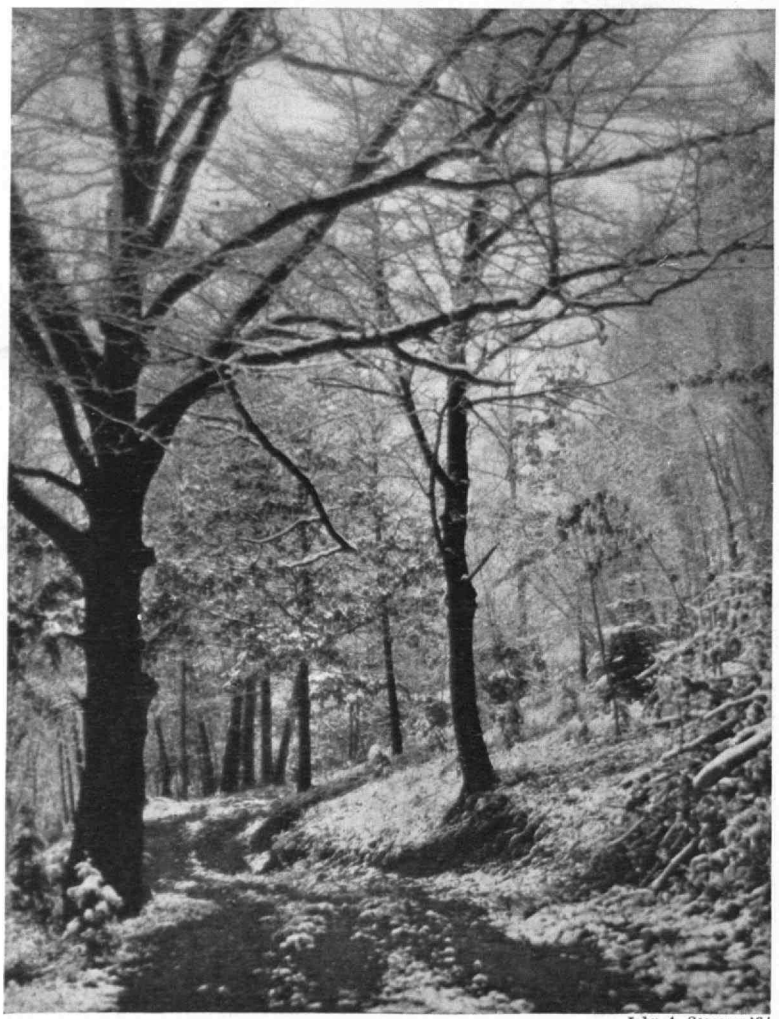
The disciple could not keep his face straight any longer, so he explained his grin by saying, "That's what I figured. I figured that if the first two coins fell heads and the next two fell tails, then the fifth coin would have to fall either like the first two or like the second two, making at least three coins showing the same face."

In following the hobby of collecting posers, many episodes like these two are encountered, and it is early realized that in the arena of conundrums the race does not always go to the mathematical shark. Readers who attack the following five problems are therefore forewarned that mathematical analysis is not essential for the solution of all of them. Shrewd insight will frequently yield answers long before the mathematician has rounded out his equations.

I. At an evening gathering in Boston not long ago an engineer proposed the following: A ball is dropped from a height of 16.1 feet onto a rigid, horizontal surface. The ball is of such elasticity that each time it falls it rebounds to one per cent of the height from which it fell. Assuming the acceleration due to gravity to be an even 32.2 feet per second per second, how long will it be before the ball comes to rest?

Of course, several other engineers immediately volunteered the information that the ball would never come to rest, at least theoretically. Sometimes the painstaking analytical approach has its merits.

II. While we're talking about balls, we might introduce an interesting pair of them. One is of aluminum and is solid, the other one



John A. Seaverns '84

Conundrums

Deceptive, for Sharpening Your ing Your Friends

RULON

The ping-pong player and the engineer's name — up the creek without a hat — the sailor who dangled on a rope

is of copper and is hollow in the center, so that the two balls are not only of equal size but are also of equal weight. Both balls are gilded, so that in appearance and elasticity, as well as in size and weight, they are quite indistinguishable. If it is forbidden to mar the surface of either ball in any way, how can it be told which ball is which?

A mathematician may solve this problem by utilizing a concept mathematical in nature, but the mathematics enters only in a roundabout way. It would seem that not all mathematical reasoning may appear mathematical. A problem proposed to the mathematics seminar at the University of Minnesota by Dunham Jackson and later popularized by its appearance in the newspapers illustrates the point.

III. There are three railroad men named Smith, Jones, and Robinson. One is an Engineer, one is a Fireman, and one is a Brakeman, but not necessarily in that order. On the same train are three business men named Mr. Smith, Mr. Jones, and Mr. Robinson. Businessman Robinson and the Fireman both live in New Haven. The Brakeman lives in Hartford. Businessman Jones lives as far from Businessman Robinson as from the Brakeman. The Engineer lives halfway between Businessman Jones and the Brakeman. The Engineer receives a salary just a third of that received by the man (among the other five) who lives nearest him. The Brakeman's namesake receives a salary of exactly $8,000 per year. The railroad man named Smith has beaten the Fireman at ping-pong.

The problem is, what is the Engineer's name?

IV. A beautiful example of the sort of problem which results in two equations with three unknowns, is the one about the man who lost his hat in the river. In a straight stretch of this river there were two stakes which showed above the surface of the water. They were a mile apart and directly up- and down-stream from one another. The man was in a rowboat between the two, rowing upstream, making headway against the current and so approaching the upstream stake. Just as he arrived at this stake, his hat blew off and went awash. The man realized that his hat was very old, however well made, so he rowed on uninterruptedly upstream. At the end of ten minutes it occurred to him that the hat, however old, was very well made and could be rehabilitated. So he turned about and rowed downstream after the hat, which he overtook at the downstream stake.

Assuming that the man rowed at a uniform water-speed, what was the speed of the current in the river?

An algebraic approach to the solution of the above problem may well lead the would-be solver into a full half hour of frustration, while the attacker whose insight is shrewd enough can report the answer almost before the final words are out of the mouth of the questioner. And there can be no doubt about the answer.

V. Those who enjoy arguing about a problem to which there must be a unique answer may well mull over this one: A rope whose weight may be neglected hangs over a smooth pulley in which friction may be neglected. It has one end fastened to a weight of 150 pounds and the other end to a sailor of weight 150 pounds, the sailor and the weight hanging in the air at the same elevation. The sailor begins steadily to climb the rope. Will the weight move at all, and if so will it rise or fall, and whichever it does, if it does either, how long and how far will the process continue?

[Do not read beyond this point if you still have hopes of getting the answers to the above problems. They are given on 201*f* with one exception.] (*Continued on page* 201)

John A. Seaverns '84

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

February Docket

Ciliary Symphony

INSTINCT and inquisitiveness have led man to the state whereby he must secure food with his hands. His lowly relative, the close-mouthed clam, having neither hands nor brains, seemingly shows more wisdom. He settles in the mud and waits for food to come, and the evidence that food is furnished lies in the fact that clams live and grow.

A study of the feeding process of clams would seem to be a profitless undertaking for man, and yet a bit of biological sleuthing anent this bivalve banquet business, with the aid of the Edgerton high speed camera, has yielded interesting results to Professor John W. M. Bunker and Dr. Marshall W. Jennison, '27, in the Department of Biology and Public Health.

The parts about the mouth of the clam are bewhiskered with innumerable hair-like processes of living protoplasm, each of the order of 25 microns in length. These cilia, as they are called, are in rapid motion, and in waving back and forth set up currents of water in which food floats into the maw of the mollusc. The first clear movies of this ciliary symphony are now available.

A study and analysis of these pictures (see below) shows that each beat of a cilium is resolved into three phases, effective, resting, and recovery stages. In the resting stage the cilium is stretched limply flat along the skin. After recuperating for .025 second, the cilium is raised to an erect position, presenting a picture similar to that of a fly rod during the backward movement of the cast. At the limit of recovery, the tip is seen to carry past the remainder as if by its own momentum. This recovery phase is relatively slow, occupying about one-third of a second, and is followed immediately by the return sweep of the effective stroke.

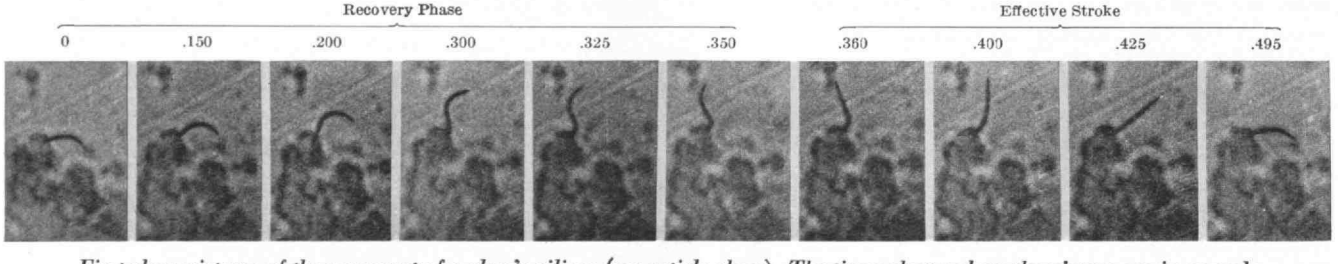
The effective stroke of the clam's cilium is most interesting. The structure sweeps downward with force and speed, maintaining a rigidity which is in contrast to the behavior expected from a flexible rod. One postulates a reversal of colloidal condition in the polyphase protoplasmic system from a sol to a gel. While the cilium recovers limply it suddenly changes its state at full reach and, like the rigid arm of the swimmer, pushes ahead of it a minute mass of water in its effective stroke. A myriad-oared racing shell, anchored in midstream with all the members of its crew picking up the beat of 120 to the minute would create a current of water in an analogous manner, and in this current whatever was floating would be caught by a fish net anchored astern.

What is the stimulus that causes the base of the cilium to lead in the bending movement both in recovery and effective phase of its stroke? What is the chemistry or physics of the sudden gelation at the end of recovery at just the right time to increase the effectiveness of the quick beat? — These and other questions remain to be answered.

There are practical applications possible to the knowledge of ciliary action. The tube leading from our own lungs is lined with cilia and they beat in such a fashion as to sweep dust and invading bacteria of the inspired air out and away from the sensitive surfaces of the lining of the lungs. In certain types of postoperative pneumonia it has been suspected that interference with ciliary action is a contributory cause of infection.

Pulse of Flight

AN ULTRA-SENSITIVE meteorograph which accurately records the rapid changes in atmospheric conditions during fast airplane flights has been developed in the Division of Meteorology. The new instrument, designed by Dr. Karl O. Lange, cuts down by 75 per cent the time formerly required for the Institute's daily weather flights over New England.



First clear pictures of the movement of a clam's cilium (see article above). The times shown above the picture are in seconds

In appearance the device resembles a miniature Zeppelin. It is enclosed in an aluminum case three inches in diameter and 14 inches long, and hangs from the wing of the plane in a specially designed frame. Its continuous records of humidity, temperature, and barometric pressure are traced simultaneously on a square inch of smoked glass. The instrument was shown for the first time in the Institute's exhibit of scientific apparatus at the meeting of the American Association for the Advancement of Science in Pittsburgh last month, when Dr. Lange discussed it in a technical paper before the American Meteorological Society.

In his design Dr. Lange has achieved three highly important advantages — rigidity, great sensitivity, and minimum air resistance. It is built on the same principle as the Jaumotte sounding balloon meteorographs, which were used in the Institute's recent flight of stratosphere sounding balloons from Lambert Field, St. Louis.

Due to the high rate of climb of modern airplanes, the temperatures and humidities to be recorded during a flight shift abruptly from instant to instant. Up to the present, there existed no instrument sensitive enough to keep up with the true conditions. The only way to obtain reliable data with an ordinary meteorograph was to make a slow climb, necessitating additional and expensive flying time to reach the same altitude.

In the new instrument, a ribbon-like bimetal thermometer one two-hundredth of an inch thick records temperatures accurately and continuously in the fastest climbing planes. The traditional human hair, still the most sensitive material known for recording humidity, serves as hygrometer. A special study now under way at Technology is expected to bring about further improvements in that device.

With the use of faster ships, the factor of air resistance becomes increasingly important. The air resistance set up by the old type meteorographs, with their rubber shock-cord suspension, served to reduce the "ceiling" of the light planes frequently employed on weather flights. By making the instrument smaller and Zeppelin-shaped, this problem was satisfactorily solved.

Fine steel pointers trace their records of weather conditions on a small glass plate coated with gas smoke. After the flight, this plate is projected on a large frosted glass containing calibration lines. The curves are then traced or the significant points merely read off. Photostatic records of the flights can be made by placing sensitive paper on the projector.

New Secretary of Athletic Council

A MAGAZINE'S right hand frequently knoweth not what its left hand doeth, and at times this is well, for it precludes embarrassment. With this assurance that he knoweth not what we do, therefore, we, the Editorial Staff of The Review, record with pleasure and enthusiasm the appointment of The Review's Business Manager, Ralph T. Jope, '28, to the secretaryship of the Alumni Advisory Council on Athletics, vice the late Dr. Allan W. Rowe, '01.

Mr. Jope is admirably qualified to fill this important post. Beyond the eloquent testimony apparent in every issue of The Review to his success as its Business Director, there is the record of his work in other places and other fields. As an undergraduate at the Institute he was Vice-President of his class in his junior year, and was elected President of the Class of 1928 and of the Institute Committee, the student governing body. He is now permanent President of his class.

During his freshman year Mr. Jope was manager of the freshman boxing team, and in his senior year was elected business manager of *Technique*, the undergraduate yearbook. Throughout his undergraduate years at the Institute he was active in student affairs and was a member of the debating team for three years. He is a member of Pi Delta Epsilon, the honorary journalistic fraternity, Theta Tau, the professional engineering fraternity, and the Calumet Club, honorary organization of the M.I.T. Athletic Association.

Upon his graduation Mr. Jope joined the Staff of The Review, and has kept closely in touch with student affairs, particularly as a member of the Advisory Council on Musical Clubs. He has been active in the affairs of the University Club and is a member of its Board of Governors.

The Alumni Advisory Council on Athletics was organized in 1898 through the interest of the late Major Frank H. Briggs, '81, in undergraduate athletics at Technology. He was chairman of the Council until 1910, when he became general treasurer. Major Briggs was succeeded as chairman by Dr. John A. Rockwell, '96, who still holds that position. The other members of the Council, in addition to Messrs. Rockwell and Jope, are Henry E. Worcester, '97, Harold S. Wilkins, '14, and Joseph L. Levis, '26.

We are confident that this Council, working through Mr. Jope, will continue to foster those high ideals of sportsmanship which Dr. Rowe upheld with such vigor and conviction. We feel the delight that arises from complete approval in the Council's selection of our colleague.

Graduate House Embellished

THE value of the Institute's Graduate House was demonstrated anew at a dinner on January 7, when a suite of rooms providing special facilities for the entertainment of distinguished guests and for the use of groups of students of kindred academic interests, was dedicated. The rooms were named for two members of the Corporation, John Russell Macomber, '97, and Francis Wright Fabyan, '93, both of whom are deeply interested in the Institute and in activities of the Department of Business and Engineering Administration.

The new rooms were designed for the special use of the industrial sponsorship candidates of the Department of Business and Engineering Administration. This group consists of students who, after having experience in industry, are invited to return to the Institute for a year to pursue a special study of the administration of business. Upon the successful conclusion of their work at Technology, the students return to industry under a sponsorship of five years.

The Macomber Room consists of a large and attractively furnished living room with an adjoining study, while the Fabyan Room, with facilities for entertain-

Decorative Fountain head modeled by a student in the School of Architecture

ment, will be used as a dining hall for the weekly dinners of the industrial sponsorship group. At other times the room will be available to residents of the graduate house for special events.

These rooms constitute a unit which is a distinct departure from the usual appointments of a graduate house and is unique in the respect that it embodies the atmosphere of a private house and presents an opportunity for entertainment which will be of great benefit to the resident graduates.

The activities of the special group of students who devote their time to industrial sponsorship have for the past three years been carried on in a Boston hotel, where they were provided with special facilities. Since group work has proven highly essential to the success of the study of administration, these sponsorship candidates were required to live together at the hotel for the first two years. In the third year residence at the hotel was discontinued and a number of the candidates lived in the Graduate House, where they had a common study to carry out their group activities. The dinner meetings, however, were still held in Boston.

Logically, graduate activities of this nature should take place in the Graduate House, and steps were taken late last spring to provide suitable living rooms and study so that the candidates could not only live in the Graduate House but also have the proper environment for their work and dinner meetings. In recognition of this need, the Fabyan dining room was conceived and added to the Macomber living room.

Students pursuing graduate studies at the Institute are responding to a demand for highly trained men who aspire to leadership in some field of science or engineering. It is fitting, then, that the advanced study of leadership and the art of administration as applied either to business or engineering should be closely linked with other activities of the Graduate House.

At the close of the dedication dinner, President Compton presented Mr. Fabyan and Mr. Macomber with bronze nameplates appropriately designed to designate the rooms in this suite named in their honor.

Those present at these exercises included Dean Vannevar Bush, '16, Treasurer Horace S. Ford, Professor Avery A. Ashdown, '24, master of the Graduate House, Professor Erwin H. Schell, '12, Head of the Department of Business and Engineering Administration, Professor Fairfield E. Raymond, '21, and the eight candidates for industrial sponsorship in residence at the Institute this year, Archibald H. Atkinson, John F. Borrowdale. Edward F. Creevy, Jr., Stuart A. Challender, Albert M. Heintz, Orville E. Henning, Carrington Mason, '31, and John R. Whitney.

Technology at Pittsburgh

TO THE many honors which have come to President Compton is now added the presidency of the American Association for the Advancement of Science. His

election was announced at the recent meeting in Pittsburgh and he will take office next year. Dr. Compton has long been active in the affairs of the association and is a member of its executive committee.

Dr. Compton and Dean Bush, '16, as well as a representative group from various Institute departments, attended the meeting. Dean Samuel C. Prescott, '94, who was chairman of the general committee which made arrangements for the A.A.A.S. meeting in Cambridge in 1933, also attended with Professor Arthur L. Townsend, '13, and Dr. John W. M. Bunker, both of whom were members of his committee at the time of the meeting a year ago.

As a result of their studies of cosmic radiation on Mt. Evans last summer, Professor Ralph D. Bennett, Gordon S. Brown, '31, and Henry A. Rahmel, '33, of the Department of Electrical Engineering, presented a paper on "Frequency and Magnitude of Cosmic Ray Showers as a Function of Altitude" at a meeting of the American Physical Society. At other sessions of the society, David B. Langmuir presented a paper on "Contact Potential of Thoriated Tungsten," and Professor Bertram E. Warren, '24, with John T. Burwell, Jr., '34, read a paper on "The Structure of Rhombic Sulphur." All are members of the Department of Physics. Professor Norbert Wiener of the Department of Mathematics read a paper "On Closure of Bessel Functions," before the American Mathematical Society.

Door Knocker modeled by a student in the School of Architecture

Dr. Karl O. Lange of the Division of Meteorology of the Department of Mechanical Engineering delivered a paper on "A Super-Sensitive Airplane Micro-meteorograph" before the American Meteorological Society. The instrument is described. Among other members of the Institute staff who attended the various sessions were Professor Henry B. Phillips, acting head of the Department of Mathematics; Professor Joseph C. Boyce, and Dr. William D. Urry of the Department of Physics, and Carroll L. Wilson, '32.

Dr. Compton participated in a symposium on the relations of science and the press, which was attended by scientists and science writers from the newspapers and press associations. Calling attention to the steadily growing public interest in developments in science and its application for the benefit of mankind, Howard W. Blakeslee, Science Editor of the Associated Press, urged greater freedom of contact between scientists and the writers with the object of accurate interpretation of scientific work. President Compton, whose official activities have brought him into close contact with newspaper men, urged more sympathetic realization of each other's problems by the scientists and the writers. He urged particularly that scientists give more thought to interpreting their work in terms of lay understanding, a measure which goes far toward avoiding the dangers of misquotation or inaccuracy.

Dr. Compton and Deans Bush and Prescott were guests of the Technology Club of Pittsburgh at a dinner attended by some 60 members of the club.

The Institute's exhibit of scientific apparatus was one of the most interesting of the exhibition which was held in the Mellon Institute for Industrial Research. The apparatus included a new demonstration model of the Van de Graaff 10,000,000 volt electrostatic generator, new mechanical aids to the solution of mathematical problems, the Institute's new micro-meteorograph, a model of atomic arrangement in crystalline structures, and a new instrument employing the Piezo-electric crystal to measure the explosive forces in a gasoline engine. The Edgerton high-speed pictures were also shown. The exhibit was in charge of D. H. Clewell, '33.

Ten Thousand Dollars

A GIFT of $10,000 from Sir Douglas Alexander, President of the Singer Manufacturing Company, which will make possible the development of two important research projects at the Institute has been announced by President Compton.

Half of the gift has been allotted for the construction of a large mechanical calculating machine for the solution of simultaneous equations. A laboratory model of this device, which was designed by Professor John B. Wilbur, '26, under the direction of Dean Vannevar Bush, '16, was recently completed in the Department of Civil Engineering, and its successful operation demonstrated the great possibilities of a larger machine. The proposed instrument, which represents a notable addition to the series of ingenious mathematical machines already developed at the Institute, is expected to be especially useful in analyzing stresses in engineering structures. It will also have applications in such diverse fields as psychology and surveying.

The balance of Sir Douglas' gift will go toward the initial equipment and operation of a new laboratory for testing and research in the dynamic strength of materials. This forward looking development will be directed by Professor Alfred V. de Forest, '11, of the Department of Mechanical Engineering, an authority of wide experience in this field.

Recent investigations have revealed that apparently negligible defects, such as scratches, corrosion, or crystal formations, on the surface of a structural material may lead directly to the failure of the part. In the new laboratory, the machine designer, the physicist and the metallurgist will pool their knowledge in a study of the effect of surface and other conditions on the strength and durability of various materials.

Donor Sir Douglas is a native of Yorkshire, England, came to Canada at an early age, and has headed the Singer Company since 1905. For personal services and those of his organization during the World War, King George conferred upon him the title of baronet. Douglas H. Alexander, his son, in 1921–22 carried on advanced studies in engineering administration at Technology.

Sigma Xi Initiates

AT INITIATION ceremonies on January 11, a group of 35 scientists and engineers of the Institute staff were instated as members of the Technology chapter of the Society of Sigma Xi, honorary scientific society.

Members of the chapter then heard Robert Ridgway, distinguished consulting engineer and former chief of the Board of Transportation of New York City, discuss "Transportation Problems in Modern Cities." Colonel Robert C. Eddy of the Division of Industrial Coöperation was chief speaker at an informal dinner in the evening. Professor Dugald C. Jackson, President of the chapter, presided at the meetings, arrangements for which were made by a committee under chairmanship of Professor Philip M. Morse, of the Department of Physics.

The initiates included Professors William P. Allis, '23, Avery A. Ashdown, '24, Arthur A. Blanchard, '98, Samuel H. Caldwell, '25, Alfred V. de Forest, '11, Richard D. Fay, '17, Nathaniel H. Frank, '23, Richard H. Frazier, '23, Ernst A. Guillemin, '24, Carle R. Hayward, '04, Frank L. Hitchcock, Ernest H. Huntress, '20, W. Spencer Hutchinson, '92, James R. Jack, Joseph H. Keenan, '22, Avery A. Morton, '24, Frederick H. Norton, '18, Miles S. Sherrill, '99, Stephen G. Simpson, '16, Leighton B. Smith, '19, Charles M. Spofford, '93, Donald C. Stockbarger, '19, Edward S. Taylor, '24, Harold C. Weber, '18, Walter G. Whitman, '17, Hurd C. Willett, Robert S. Williams, '02, John C. G. Wulff; Instructors Prescott D. Crout, '29, Harold T. Gerry, '29, Heinrich Peters; Research Associates J. Warren Horton, '14, Henry G. Houghton, Jr., '27, Edward S. Lamar, and Arthur C. Ruge, '33.

George Leonard Hosmer (1874–1935)

THE death of Professor George L. Hosmer, '97, on January 10 cost the Institute one of its best known and most devoted faculty members. Prior to his retirement last October, Professor Hosmer had been for 37 years a member of the staff of the Civil Engineering Department, and since 1923 had served as Professor of Geodesy. As Director of Camp Technology, the Institute's summer camp for civil engineering students near Machias, Me., since its establishment in 1911, he was responsible in large part for its development into one of the outstanding educational projects of its kind.

His profession and hobbies took Professor Hosmer into many fields of activity and to far parts of the world. In 1901 he went as a member of a scientific expedition to Sumatra, where he made astronomical and magnetic observations during a total eclipse of the sun. Four years later he made a trip to Labrador for the Carnegie Institution to observe the effect of a solar eclipse on the magnetic declination of the earth. He engaged in numerous engineering projects in this country, including work in sanitation, water supply and power development, boundary surveys, and grade crossing elimination, and at one time was a member of the staff of the United States Coast and Geodetic Survey.

In 1911 the Institute selected a strip of territory overlooking the northeastern shore of Lake Gardner in Maine as the site of a summer surveying camp, and Professor Hosmer was chosen to direct the project. An expert woodsman, he gave successive generations of students the benefit both of his technical knowledge and his long experience in woodcraft, gained in frequent exploratory trips through the forests of northern Maine.

He was born in Lynn, Mass. in 1874, and was educated in the public schools of Lynn and Woburn and at Technology, where he was a member of the Class of 1897. Following the completion of his course he joined the staff of the summer school of topography, the forerunner of the present summer camp, and was appointed instructor in 1900. He became Assistant Professor in 1907, and served as Associate Professor from 1913 until his appointment to full professorship ten years later.

He was the author of textbooks on geodesy, practical astronomy, and navigation, and in collaboration with Professor Charles B. Breed, '97, prepared a two-volume work on surveying. Of a more personal nature is his book on "Hosmer Genealogy," in which he traced the records of the Hosmer family in this country and England back to the year 1500.

Professor Hosmer was a member of the American Association for the Advancement of Science, the American Society of Civil Engineers, the Boston Society of Civil Engineers, the American Geographic Society, and the Society for the Promotion of Engineering Education.

Dropwise

FROM the mystic brews in which the ancients sought an elixir of life, to the present day science that pours forth the fluid power for a vast machine world, the art of distillation has challenged man's imaginative genius. By the same fundamental processes known to Pliny the Elder and Aristotle, modern ingenuity now prepares the distillates which are the life blood of our mechanical age. Last month brought to the Institute a group of men who are largely responsible for the development of modern distillation methods in the field of chemical engineering.

The occasion was the first of a series of symposia held under the auspices of the division of industrial and engineering chemistry of the American Chemical Society on December 28 and 29. From academic pursuits and industries in many parts of the nation came experts to discuss this abstruse subject and to bandy information and ideas in round table discussion.

An integral part of many industrial processes, the separation of liquids into fractions of desired physical and chemical properties has become a highly technical art. By the increasingly effective design of distillation apparatus, commercial production of solvents, gasoline, kerosene, fuel oils, alcohol, glycerine, compressed oxygen and many other valuable materials has been made possible.

In technical sessions under chairmanship of Professor Frederick W. Adams, '21, leaders in the teaching profession, the petroleum and chemical industries, and the manufacture of distillation equipment discussed the general theory of distillation and rectification design, as well as its application to industry and its importance to the practical operating man. Experimental data was submitted on the separation of complicated mixtures containing three components. Among the speakers were members of the faculty of Brooklyn Polytechnic Institute, Columbia University, Cornell, Illinois, Michigan, Yale, and M.I.T.

Notice of Alumni Assemblies

THE committee on assemblies has completed arrangements for the Home-Coming Dinner for Alumni in the Boston area. It will be held in the Walker Memorial, Saturday, February 9 at 6:15. Charles E. Smith, '00, President of the Alumni Association, will preside; President Compton will speak; and the Glee Club will sing. After the dinner there will be athletic exhibitions. The price of the dinner will be $1.60, and the ticket sale is limited to the capacity of the lower floor in the main hall of Walker. Tickets obtainable at Alumni Office, M.I.T.

* * *

Plans are progressing for Alumni Day which will bring together Alumni from all parts of the country on June 3. The committee, perhaps appropriately, is starting with the last event and working backwards, and it announces that the culminating dinner will be held in Symphony Hall. There will be national speakers, and the entire Boston Symphony "Pops" Concert Orchestra will play exclusively for the Technology gathering. The price for all the events of Alumni Day, including this dinner, will be the very modest sum of $5.00.

Professor Warren K. Lewis, '05, addressed the visitors at an informal dinner meeting, and Professor Thomas K. Sherwood and Francis J. Jenny delivered a paper on "Entrainment in Plate Columns." Dr. Ernest W. Thiele '23, of the Standard Oil Company, spoke on "The Graphical Method of Ponchon and Its Application to Distillation and Extraction." Dr. Edwin R. Gilliland discussed "A New Design Calculation for Multicomponent Rectification."

Engineering Survey

A SURVEY of the engineering profession, of fundamental importance in immediate and future planning to improve the status of engineers, is about to be made by the Bureau of Labor Statistics, U. S. Department of Labor, in coöperation with the American Engineering Council and as many engineering groups as will participate.

Facts to be covered in the survey include salaries, types of employers, duties, and so on, for the past several years, educational background, and present employment status. It is believed to be the most comprehensive nation-wide study ever made of a profession.

Confidential questionnaire returns from 100,000 individuals are contemplated. The intention is to make this survey truly national and truly representative of the engineering profession from top to bottom. When the returns are in, a wealth of background information will have been gathered.

Request has been made of all of the engineering associations of which Council has knowledge, as well as the various state boards of engineering examiners, to supply a list of their members, with addresses stencilled or typed on 3 x 5 cards. It is particularly desired to discover, if possible, the present status of recent graduates

of engineering colleges, since the problem of their absorption into the engineering profession is considered to be of vital interest.

Engineering institutions have been asked to supply a list of their engineering graduates of the last five years, and this Technology already has done. We urge those Alumni who receive the confidential questionnaire to respond promptly and fully. By doing so you will be doing a service to the engineering profession.

George T. Seabury, '02, is chairman of the Council's Committee on Engineering and Allied Technical Professions.

Mathematics at M.I.T.

REPORTING recently to the Corporation, the Visiting Committee* of the Department of Mathematics noted "with satisfaction the substantial activity of the members of the Department in research and in instruction," and observes that "there are a good number of excellent students" whose presence impels the conclusion that "the new bachelor's degree in mathematics appears to be a successful venture." The Chairman of the Committee, as a result of direct inquiry, has found that mathematicians outside the Department feel that "the Institute of Technology is as well equipped to produce first-class mathematicians as any other department in America, providing appropriate raw material comes in."

The *Journal of Mathematics and Physics*, published chiefly by and for the Department under the editorship of Professor Philip Franklin, "continues to fill a very definite need." The report commends its high standard in the field of mathematical publication and recommends that the *Journal's* subsidy be again granted.

Closer coöperation between the Departments of Mathematics and Physics "is advisable in handling courses in applied mathematics," particularly since "the more the Physics Department takes over courses that might appropriately be taught in the Mathematics Department, the more difficult it may become for the mathematician to keep usefully informed of the mathematical needs of physics and engineering."

Attention is called to the need for increasing the annual sums available for scholarship aid as a means for attracting "first-class graduate students." For this objective, the Committee says, "it appears that a mathematical fellowship endowment of $100,000 would permanently insure the vitality and distinction of the Department. . . ."

* The Visiting Committee which made the above report is composed of: George A. Campbell, '91, Francis J. Chesterman, '05, L. P. Eisenhart, Martin H. Eisenhart, '07, Henry E. Worcester, '97, Harlow Shapley, Chairman.

MAIL RETURNS

(*Concluded from page 161*)

chosen field, to guide him through his difficulties, to grade him on his productiveness and thoroughness, to help him to appreciate the worth of his tasks, and to inspire him to apply what he has learned. M.I.T. has available all that is necessary to meet these requisites. It rests, as it should, with the student to take advantage of them.

Let me, to further this contention, review my own brief career. I entered the Institute, frankly, because I was more interested in the sciences than in "little Latin and less Greek." A fair student, and one who followed most of his courses with avid enough interest, I spent the four years exposing myself, attempting to swallow those morsels of knowledge which were temptingly dangled before my eyes. Upon graduation I entered the merchandising field where, to be sure, I have little use for bending moments but where I am constantly availing myself of my technical education — not specifically, of course, but generally. I feel I am as qualified to follow this field as one who might have specialized in merchandising, were such a course offered at Technology. I, along with thousands of others who have attended M.I.T., gained there, I believe, the most valuable possession the Institute has within its power to bestow, the appreciation of and respect for that invaluable handservant, Logic.

Mr. Lawrence suggested that the addition to the various courses of studies in political science, modern languages, and similar pursuits would develop within a man what I chose to call social composure. But in the main, should not "social composure" be developed by the man himself? At college age a boy should have realized that he will be learning something new every moment for the rest of his life, and certainly he should appreciate that the broadening of his intellect depends to a great end upon his own interests outside of any set curriculum prescribed for him.

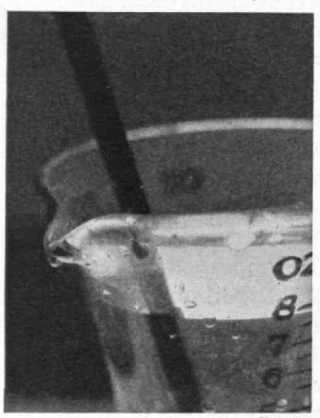
Distinct but closely related to its curriculum the Institute offers to the student another priceless opportunity, that of social contact. How valuable to a man is his daily association with 3,000 other individuals pursuing relative subjects will never be determined. Undergraduate activities, fraternities, clubs, athletics, and like institutions are not listed under any particular course, but are a necessary adjunct to all. Therefore, our student, if of the right stuff, will join an activity or team, arrange informal visits with his various instructors outside of classroom routine, expose himself to other personalities, viewpoints, situations, problems, study on his own subjects in which he is interested — in a word, develop around the core of his chosen line of studying all broadening influences possible.

My point is, in brief, that social contacts at the Institute serve to lead into later social life, that these early contacts are invaluable in the building of men of character, men of diversified interests, men whose capabilities are constantly broadening. What curriculum could cram that down even a willing undergraduate's throat? How could it be gained but voluntarily?

In my opinion, then, the Institute fulfills a service in the developing of a well rounded citizenry. To the men entering technical fields, and to the man who wants a technical background for a career in other fields it offers the best instruction available and with that, through valuable associations and outside interests available in quantity, it offers the broadening influences of social contact.

It is not the knowledge of data, but the knowledge of its availability and the inspiration to seek it out that makes for strong character, high ideals, and well-rounded, ambitious, and industrious leaders of men.

ADDISON S. ELLIS, '32
20 Park Place
Kingston, Pa.



Foerster
Still Life

Korth
Extinguished Candles

PROCEEDINGS OF THE FOURTH ANNUAL BUSINESS CONFERENCE SPONSORED BY THE DEPARTMENT OF BUSINESS AND ENGINEERING ADMINISTRATION, M.I.T.

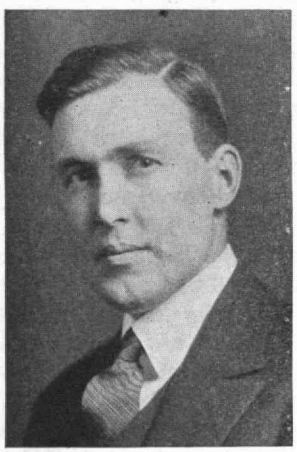
Clinical Notes on Business in 1935

Restricting the Freedom of Sellers—Candid Accounting—Facts Behind Finance

FOR the past three years the Department of Business and Engineering Administration (Course XV) has been holding for the benefit of its graduates an annual business conference at the beginning of the new year. The most recent of these conferences was held on December 31 and was attended by more than a hundred graduates of Course XV. Last year The Review, in behalf of the Department of Business and Engineering Administration, published condensations of the addresses delivered at that conference, and the reception was so favorable that this year again we present three of the papers delivered by members of the Department. Other addresses at the conference on December 31, in addition to those presented below, were: "Future Demands upon Young Men in Business," by Henry I. Harriman, President of the Chamber of Commerce of the United States; "The Saga of Mr. A. Mareeka," by Davis R. Dewey, Professor Emeritus of Economics and Statistics; "The Changing Attitude of Business toward the Law," by Albert A. Schaefer, Assistant Professor of Business Law.

Controlled Markets or Free?

By Robert F. Elder
Associate Professor of Marketing

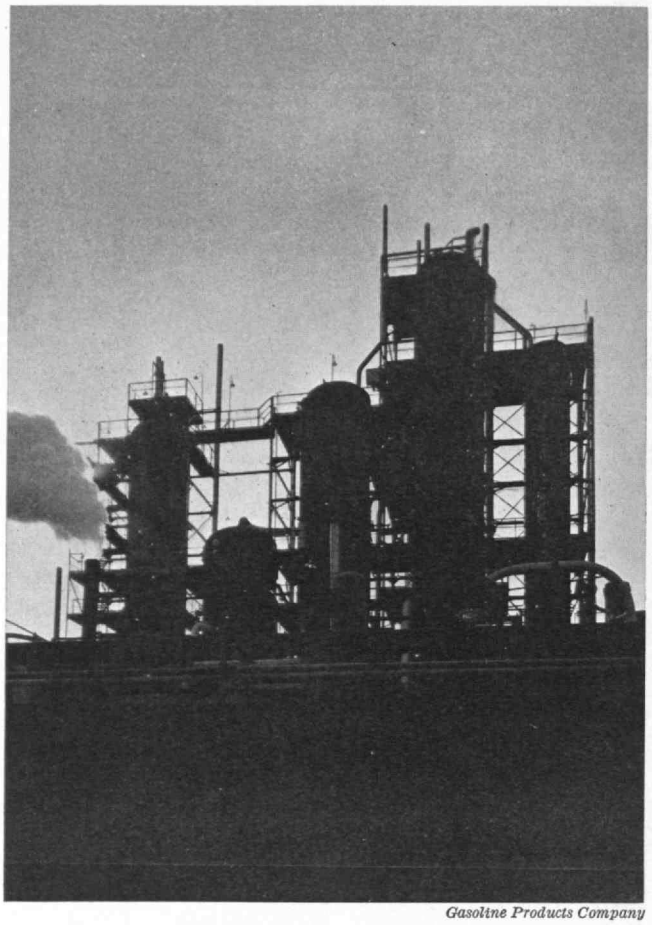


CLASSICAL economic theory postulates the existence of markets which are absolutely free, where buyer and seller bargain on an equal plane with neither one subject to compulsion or restriction. In actual fact, we should undoubtedly have to go back a long way in history to find a perfectly free market. The modern seller must conduct his business subject to myriad controls and restrictions. Many of these have the force of law, with more or less severe penalties for those who knowingly or unknowingly violate them. Others are imposed by concerted action of groups of business men and enforced by financial pressure. These do not come so much into the public eye, but there are few manufacturers or merchants who have not had experience with them. Still other restrictions are imposed by groups of citizens, some with selfish, some with unselfish motives, and are put into effect by the fear of boycott. That these extra-legal restrictions are often effective can hardly be doubted when we note the practical disappearance of the "Made in Germany" label, or the turmoil in the motion picture industry created by the Legion of Decency.

In one industry or another, government-imposed restrictions bear upon practically every phase of marketing activity. Quality, design features, container sizes, labels, amount of production, prices, discounts, credit terms, selling methods are all subject to control. We can find in some business today a precedent for almost any type of regulation which might be proposed.

It is not my intention to advocate the abolition of the existing controls over marketing activities, nor even to argue against their further extension in some directions. We all recognize the need for restriction and regulation. No one wants the sale of tainted food or dangerous drugs to be made free of control and without penalty. However, we must all pay serious attention to the rapid narrowing of the area within which the business man exercises freedom in selling his goods. This is one of the most significant of present-day economic phenomena. Generally when a further extension of control over marketing is sought, it is with the praiseworthy object of remedying some abuse. I want to advance the thesis that in some cases the cure may be more harmful than the disease. It is even more vital that we must realize that sooner or later we must face the issue as to whether the basic business control shall be regulation or competition, a "planned economy" or the profit system.

I want to make it clear at the outset that I have no objection to any form of control over any business activity, provided it is in the long run for the general social good. I am perfectly ready to place the general welfare ahead of private profits. We may as well realize that business does not exist for the profits it produces, but for the creation and distribution of goods and services for the material welfare of the general public.



Gasoline Products Company

Most of us who are — somewhat unfairly, I think — labeled as "conservatives" believe that the general welfare is best served by utilizing the tremendous force generated by the selfish desire of individuals to secure profits for themselves. To utilize this force effectively we need competition, rather a considerable amount of it. Regulation is the negation of competition. Every time we restrict the area within which business men may compete with each other, we weaken the effectiveness of the profit system for serving the general welfare. When a new regulatory measure is proposed, we ought to examine it very carefully to see whether or not its beneficial results outweigh its cost in the diminution of individual initiative and in the weakening of the instinct to seek profits through business enterprise.

To me it is alarming to note the apparent assumption in various quarters close to the present Administration that every business man is a crook and a swindler, that there is something about trade which debases the man who enters it. This is supposed to be a "progressive" attitude. To the student of business history, it is merely a reversion to the Dark Ages. In all early civilizations the trader was an object of suspicion. In ancient Athens no citizen would soil his hands with buying and selling. In Rome, Cicero castigated the merchant class as low and untrustworthy. Even today the Robin Hood complex is tremendously strong. That it should be good for so many votes is a sad commentary on the shortsightedness of business men as a class in failing to make known the elements of business as a profession. There is no need to argue the falsity of the idea that the majority of business men are dishonest. We all know many of them, and we know that they are for the most part honest, earnest, and sincere. Most of them take fully as much pride in the benefits they render to society as in their individual profits. To be sure, like all the rest of us they have their moments of extreme selfishness, stupidity, and shortsightedness. But can we find men to regulate business who lack these shortcomings?

Coming back to the subject of controls over marketing activities, we find that both existing and proposed measures seek one or more of three objects:

(1) preservation of the public health, safety, and morals

(2) protection of the consumer against exploitation

(3) protection of one competitor against "unfair" tactics of another.

Typical of measures seeking the first objective are our local health ordinances and the Federal Pure Food and Drugs Act. Such measures are clearly defensible on the ground of the economic loss to society as a whole when illness or death results from their violation.

One of the most discussed topics of the day among marketing men is what might be termed the "Consumer Movement." Stuart Chase, '10, was one of its earliest prophets and "Your Money's Worth" one of the first books of its Koran. How large and how important it is we do not know. It seems to be composed of a rather large number of unorganized groups, mostly of women, who are interested in learning how to spend intelligently. It has the potentialities, if it is ever galvanized into action, of a major business force. Enterprises which depend on sales to consumers would do well to watch it carefully. It might turn into a vast movement for consumer education, to reincarnate in the American housewife the ability to judge merchandise and buy intelligently and frugally. This would be a fine thing for business as well as for consumers. It would blow up a lot of the extravagant claims and misrepresentations which are helping to create a reaction against modern advertising and selling methods. Or it might turn in the direction of seeking a greater degree of government control over marketing. It might, for instance, seek the standardization of consumer goods into definitely established grades, to make for greater ease in judging them. For the same reason it might ask for some form of censorship of advertising, placing on the advertiser and perhaps on the publisher, the responsibility for proving that all statements made in advertising are the strict and literal truth, the whole truth, and nothing but the truth.

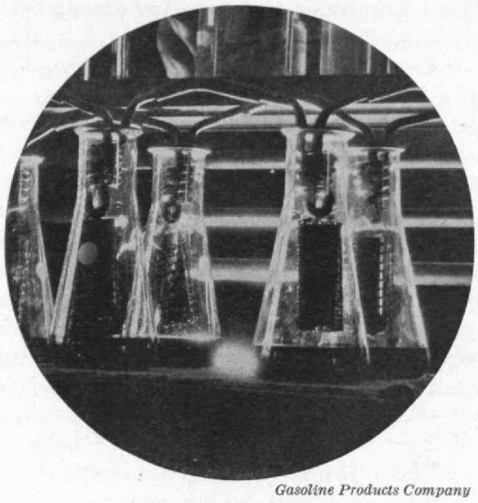
As a matter of fact, both of these steps are already being strongly urged. There is a strong movement under way to write into the code for the canning industry a system of standard quality grading. Under this plan every can of fruits or vegetables would have to bear on its label in bold type a designation of its grade. Government inspectors would be on duty in every cannery to test samples and make sure that the goods came up to the grade claimed. This seems, at first glance, a thoroughly sound proposal. It is a fact that the housewife today has no real basis on which to choose canned goods. Sometimes the most expensive brand is much inferior in quality to its cheaper cousin. So many are claimed to be the "best" that a lifetime would hardly serve to try

them all in a single household. One instance is cited in which two brands of canned string beans, identical in pack, from the same cannery, were simultaneously on sale in our retail store, one marked 12½¢, the other 7½¢ per can.

When we get down to fundamentals, however, there are some real objections to the plan in the form in which it is usually advocated. Most important is the claim that the establishment of compulsory standard grades would remove the incentive which leads producers to spend money on research to develop better products. Why try to develop a super grade A when the product must compete with those which merely meet the minimum grade A requirements? There is a case which drives home the point very nicely. A manufacturer of fire extinguishers was making the best equipment he knew how to make, and doing quite nicely. Along came the Underwriters' Laboratories with a definition of "acceptable" extinguisher equipment which was entitled to a reduction in the insurance rate. A standard having been set, most manufacturers and merchants bought the cheapest equipment which met the standard requirements. The company which made the best product it could was left with a rather thin market of unusually intelligent buyers. Thus minimum standards have a strong tendency to become maximum standards and to make the most profitable policy one of "just getting by."

Is this a serious objection? It would seem to be. Progress in the development of new and better products is too important to humanity to be stopped by the desire, however sincere, to prevent a certain amount of waste or a certain amount of exploitation of individual consumers. Whether in nature, or in science, or in industry, progress always seems to involve a certain amount of waste, hardship, and cruelty to the individual. We ought to do all we can to eliminate these things, but in trying to do so, we have no right to impede progress itself. In the particular case of the canning industry all that is necessary is to provide that manufacturers must label their goods explicitly, giving full information on all measurable characteristics, and then to let consumers, armed with the facts, learn to choose intelligently. It is indeed a radical doctrine that the government undertake to prevent the buyer from spending his money foolishly. It may insist that he be given a reasonable opportunity to learn the facts, and it may well undertake to punish sellers who deliberately misrepresent the facts, but to undertake any further control over the bargaining process must result in the negation of all bargaining. And the right to bargain is one of the corner stones of our profit-economy.

Closely related to this demand for quality standards is the demand for regulation of advertising. The advertising profession has certainly permitted some of its members to befoul its nest. A recent survey shows two-thirds of the people questioned favored some form of Federal regulation of advertising. It seems to me again that censorship by government agency would be very likely, even though it corrected some abuses, to lead us into paths which we do not desire to follow. Advertising is an important tool in the modern bargaining mechanism. To establish any strong central control over it would undoubtedly tend to impair the freedom of bargaining.

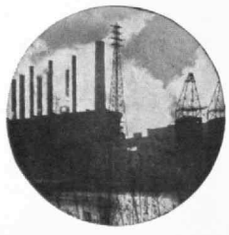


Gasoline Products Company

What is even more serious, advertising revenue is the main support of our newspapers, magazines, and radios. To put under government control the principal source of revenue of press and radio seems to me to be incompatible with our ideas as to freedom of expression.

If advertising which is demonstrably false in any material particular operates to the detriment of consumers or competitors, there ought to be redress in the civil courts. A consumer who suffers damage by relying on false claims can bring suit, not only against the manufacturer, but also against the merchant from whom he bought the goods. If it is argued that the average consumer has neither the funds nor the inclination for such proceedings, why not let the Better Business Bureaus see to the matter? If courts refuse to hold that statements in the advertising of a product constitute an implied warranty, then let us have this question directly settled by legislation.

The trouble, of course, is not with advertising which is literally and provably false. It is with that which suggests an inference without making a positive statement. Such an advertiser can keep himself out of the toils pretty well, since it is necessary to prove deception and also intent to deceive. However, if it is difficult to provide enough tangible evidence to get a court decision, upon what grounds would a government censorship decide whether an advertisement is legitimate or not? Granting its members all honest and competent, the decision would still be a matter of judgment. We have not yet reached the stage where every citizen must register at the nearest station house, have his photographs and finger prints placed on record, and live under parole to a board of inquisitors who can decide that an action which he thought was legitimate actually is criminal. Are advertisers so nefarious that they should be subjected to such treatment? We are too prone to try to cure the shortcomings of humanity by passing laws and setting up regulatory bodies. Any impartial observer must conclude that the general level of advertising has improved over the last decade. The intelligent consumer is beginning to learn how to get information about various products and how to buy wisely. As he demands more and more straight facts, and less tommy-rot, he will get the facts, because competition will force



advertisers to provide them. As for consumers who refuse to use intelligence in their buying, I doubt if legislation or regulation will succeed in denying the divine right of a fool to be parted from his money.

These movements to restrict further the freedom of sellers in bargaining are really part and parcel of the current wave of discontent with our capitalist economy. Advertising's severest critic, James Rorty, in his interesting though somewhat hysterial book, "Our Master's Voice," admits that advertising is a necessary part of a capitalist society. He is frank in his belief that we should abandon capitalism and seek a better life under some socialistic form of economic order. What we need to realize is that it is not a difficult thing to step from one order into the other without intending to do so; that it is impossible to have the advantages of both with the disadvantages of neither. We cannot ignore the fact that regimentation of sellers means also regimentation of buyers. If we regulate what is to be sold, how it is to be sold, and at what price, we also regulate and delimit the buyer's freedom of choice.

Accounting Policies Under the Spotlight

By Wyman P. Fiske
Associate Professor of Accounting

DURING the current depression there has been an increasing amount of criticism of corporate reports and of the accounting policies reflected in them. Although the volume of adverse comment is perhaps explained by the catastrophic decline in security values, the objections themselves are fundamental and serious. There is clear evidence of failure on the part of business management and the accounting profession to accept the public as a party at interest, to be considered in every corporate report prepared for publication. This is in spite of the fact that the public is in many cases the most important source of capital used in the business. The withholding of information generally accepted as necessary to sound investment, providing the information might affect the decision, is in the nature of a fraud. The public is entitled to protection and if the protection chosen — namely, the Securities Act — is not to the liking of industrialists, only the bad practices of some managements can be blamed for it. That the financial reports of business corporations are utterly unintelligible to the vast majority of stockholders and investors must be accepted as a fact; and further, that the information given in many corporate reports is hopelessly inadequate must also be admitted as true.

One of the most frequent suggestions for meeting the difficulties of the situation is that of uniform accounting reports and policies under governmental regulation. Uniformity of practice is clearly desirable to the extent that the conditions reported are themselves uniform. Unfortunately, business is characterized by diversity of types and methods of operation. Under such conditions attempts to impose uniformity of practice and reporting could result in statements which are positively misleading. Differing situations call for judgment in selecting the best treatment, and "judgment and opinion are not subject to codification without jeopardy to the continued development of human welfare." Uniform accounting would retard progress and fix practice at the average of current conditions; it would result in a standard far below the accounting practices of leading business concerns at the present time. It is not a panacea and whatever advantage it offers should be obtained through the voluntary actions of business and the accounting profession rather than as a result of government regulation.

Business men seeking credit and capital from the public must not only admit the right of the stockholder and the public to receive adequate information but must give it ungrudgingly and with a true recognition of the interests of partners in the same enterprise. They must further face the fact that stockholders and the public are untrained in accounting technicalities and cannot be expected to interpret highly technical statements. There is a real need for the development of new types of corporate reports including financial statements really intelligible to the untrained user. A one- or two-page report prepared so as to be understood and used is far better than a longer technical report cast into the waste-paper basket. There is, of course, a need on the part of trained investment analysts for the latter type of report, but it should not be inflicted upon the average stockholder.

While business men must turn to the accounting profession for assistance in the improvement of reports, they cannot escape the responsibility for the type and extent of information published. Failure to publish adequate facts as to earnings and adequate explanations of surplus changes handicaps analysis to such a degree that the criticism of evasion is in many cases fully warranted. Until management meets the challenge and willingly publishes complete information concerning solvency, financial position, and earnings, it must face a real danger of further drastic regimentation of the general type included in the Securities Commission regulations. While balance-sheet information is today reasonably complete, statements of earnings are almost universally inadequate.

The criticism of lack of uniformity can to a large extent be answered by publicity regarding accounting policies followed. The difficulty is generally not so much lack of uniformity as a complete lack of information concerning the bases on which the figures were developed. If an analyst can be certain of the policies followed and the bases for them, he can proceed in his analysis even though he disagrees with the wisdom of any or all of the policies. A suggestion has been made that all companies seeking capital from the public be required to file with a proper authority a statement of the accounting policies (as to which the company will have complete freedom of choice) followed in the preparation of financial

statements and then file notice of any departure from the published statement of policies. This suggestion leaves the company its freedom of choice but seeks to provide information badly needed by the investing public. Its adoption, supplemented by better designed reports and more complete financial information, would tend to stem the flood of criticism and to prevent undesired and unnecessary regulation.

Facing the Facts in Finance

By Floyd E. Armstrong
Professor of Economics and Finance

WHEN I was a boy living in the lumbering and logging districts of Michigan, it was a common thing in the spring after a long winter of ice and snow to find a stream filled with logs backed up for miles while the water poured through and around them, but they would not move. The trouble was a jam at the front. Plenty of water, but not doing its work. Loosen the key logs and the mass would move forward. To do that was often a difficult and dangerous task. Dynamite was frequently brought into play. Wise old rivermen knew that no more water was needed. In fact the water they had backed up behind the logs was apt to give them plenty of trouble when the movement finally began. The longer the delay, the greater the danger. Eventually, by heroic measures the obstacles were removed, the pent-up forces went to work, and in a few hours the logs were floating easily toward the mills.

Is there an analogy in this story to the political-economic circumstances of our times? Not a perfect one I am sure, but to some extent there is. Business (that is the business of heavy industries) is disappointingly slow in starting. Money and credit constitute the medium in terms of which business moves. Loud-voiced, quack business doctors shout from the shore as it were, "Open the upper dams." "Get more water into the stream." "Inflate!" But wise and experienced old heads in charge of the drive know that what is needed is to break the jam.

I have been asked to talk to you today on the subject, "Facing the Facts in Finance," but I shall undertake a broader task and discuss the subject, "Facing the Facts *Behind* Finance." I shall endeavor to deal with *key* facts, the circumstances which, in my opinion, are fundamentally responsible for the fact that the business jam does not break.

The long winter of this depression came to an end in the summer of 1932. Statistical evidence is now at hand that proves quite convincingly that June and July, 1932, saw the low point in industrial activity and the bottom of stock prices. We should, therefore, be fairly well on our way toward normal business conditions by this time. At any rate, we should expect to be farther off the bottom than our latest figures indicate that we are. Of course, we have come back some way, and at the present moment we are moving rather definitely in the right direction from our late summer and early fall slump that left us ever so short a distance above the 1932 lows. Why have we not done better?

As I see it, there is one fundamental difficulty, though there are no doubt many contributing influences. This difficulty I shall call the "Dilemma of Double Driving" — the D.D.D. we might say in these days of alphabetical nomenclature. Shall business be directed and driven from Washington, or shall it be directed and driven by owner-managers responding to the same incentives that have urged and spurred them to action since the dawn of our present economy? The jam in business is at the point of control. Our economy is not a technical economy. It is a financial economy. All the talk about people willing to work, people needing to work, people with too great productive capacity, people surfeited with excess supply, other people starving, corporations with technical improvements ready to be launched, capital so abundant that the interest rate is almost zero, all the technocratic chatter about satisfying our needs by a four- or five-hour work day — all are utterly meaningless when the controls refuse to work.

Admittedly, we could have a new kind of control, a socialized control, an authoritative control, a fascist control or something else — if we were willing to pay the price in the surrender of other values. Perhaps we may have it some day. But *today we do not have it.* Apparently we, as a people, do not now want it. Yet we are following policies, based, at least in part, on the assumption that we do have it — policies which would be effective only if we did have it. Wires are crossed. Commands proceed from those thinking in terms of socialized control to others who move (if they move at all) only in response to an economic incentive — the profit incentive of private enterprise. Capitalism (which our leaders tell us they propose to maintain) works, if it works at all, only in response to the profit motive and under control of manager-owners urged by this profit motive. When people of means — manager-capitalists — see with measurable certainty some profits ahead with security for their capital, then they will take action. Forward buying, investment for future income, industrial developments not now believed possible will come. It is utter folly to talk about our over-built industry, if by that is meant that there is no place for further investment. Of course, we had over-expansion of coal mines and textile mills and automobile plants and other manufacturing facilities. There is even yet apparently a redundant supply of office buildings, hotel space, and other large structures. And of course, in that over-built condition, we discover an economic waste and a contributing cause for our difficulties. The wastes of such over-building, however, constitute a part of the price of economic progress, and the scrapping and abandoning of the obsolete makes way for the progressive new. Such scrapping by the unfortunates who must endure it is, of course, hard, but it has always been so. Life is hard. It is a struggle, and through it all some emerge tri-

umphant, while others go down to defeat. The test of a man is his ability to take it and not quit. Has he lost today? Tomorrow he may recover, for the way will appear.

I do not know what will emerge as the vehicle for our next wave of capital expenditure and resulting recovery, but I do know that that vehicle will appear. Just as senseless to talk of being all through today with no place for further development as it would have been to have said there was nothing ahead when wagon works and whip factories seemed to have been over-built on the eve of our amazing automobile development. Perhaps it will be several things that will serve to provide the agencies for recovery. Air conditioning contains tremendous possibilities. Everyone wants air-conditioned buildings, and when everyone wants a thing in a rich and progressive nation, vast numbers will soon demand that thing. Even our backed-up replacement demand will provide billions of dollars of expanding buying as soon as business leaders see their way clear to move with confidence and decision. Colonel Ayers has estimated this item alone as sufficient to maintain a high level of industrial activity for a decade to come.

The opportunities do exist. Yet we are confronted by the facts that there are today (according to the figures of the American Federation of Labor) over a half million more unemployed than a year ago, nearly five million more on relief than at that time and about 25,500,000 on Uncle Sam's payroll — one in every five of our people. All this in spite of the fact that in 18 months we have added something like $10,000,000,000 to our national deficit, although the President asserted when he took office that a $5,000,000,000 deficit in 1934 would, he feared, undermine the government credit. While recovery has thus been delayed in this country (we have, of course, had two or three false starts that have failed to carry through), it has come in much larger proportionate measure in most other nations. France, alone, among the greater western countries has had a slower rate of recovery than we. How is this to be explained? Well, one is bold who says he can give the answer, yet I shall be bold enough to declare that it is in my opinion found in my three "D's." In spite of what we must believe is the hope of the administration that business shall take up the load of unemployment (they say that is their desire), it is my contention in this paper that almost every step taken during the past 18 months has operated to oppose and hinder the realization of that hope. Observe that this is business only, not social reform, that I am discussing. With the social aims and business reforms proposed, most people are in accord, but it is with economics and business recovery that I deal.

First and foremost as a retarding influence was the law ironically named the National Recovery Act. Candor compels one to admit that big business men were just as much at fault in establishing this economic blunder as was the Government. The former were motivated by a selfish desire to escape from the existing discomforts of a competitive system working relentlessly and viciously at the moment. The latter (the Government) was urged by an allegiance to what most well-informed people believe to be a false economy. However we explain its origin, the NRA came into existence. Much that it has done, incidentally, has been socially desirable. Minimum wages and the elimination of child labor must be put on the credit side of the ledger — as must all reasonable efforts to raise the plane of competition, but in principle it was unworkable, uneconomic, and unsound. It has retarded and obstructed recovery through aggressive private initiative in many ways. Its whole purpose was to raise wages and prices in the mistaken notion that thus buying power would be created and used. Demand responds to *lower* prices, and profits come at the bottom of the cycle through taking advantage of low costs. Under this law wages were raised, hours were shortened, output was regulated, and expansion of productive capacity controlled. These things hampered freedom of price movements and (as it developed) stimulated labor difficulties and led to strikes, besides strangling the initiative of any who might have been willing to enlarge their production. The law was based on an economy of scarcity rather than on an economy of abundance. Not less production but more is needed. Not less machinery but more is wanted. Not less of productive effort but wiser and better balanced use of our productive resources is the thing that will lift us from depression to a rising period of prosperity and an advancing standard of living. The paradox of poverty midst plenty cannot be corrected by removing the plenty.

Second. The monetary policies that have prevailed have been a source of continuing uncertainty. Regrettable as this was, I, for one, do not see how it could have been avoided. The enormous burden of debt that had been created in all countries of the world and between nations had destroyed the previous condition of economic equilibrium because of the inflexibility of hundreds of billions of dollars of contract claims that would not yield though all existing values had fallen to extreme depths. Even had it been possible to withstand within the nation the strains which this condition set up, the international situation was more serious. One after another the great nations of the world had devalued their money or abandoned the gold standard. The disastrous results on our international trade made it imperative that something should be done in national self-defense. The inevitableness of the circumstance, however, did not make it any the less difficult to endure, and its consequences were none the less serious. The capital market was virtually closed. People refuse to commit capital to enterprise for future return when they are in grave doubt as to the sort of dollars in which that future return will come back to them. The futile gold-buying program of Professor Warren was just one item in this disturbing circumstance of monetary instability. The question still harasses those who have to do with fiscal policies in business enterprise. We can probably do nothing ourselves until England acts with us, but steps toward monetary stability should be taken at the earliest possible moment.

Third. Labor relationships have not been favorable to business undertakings. No one will (or at least no one should) oppose steps that may *reasonably* be taken to better the lot of labor and increase its share in distribution, but low wages in earlier depressions have been an occasion for capital to take on additional helpers in the

hope and expectation of making profit from their labor at the lower wage. Perhaps we should have a communistic or socialistic society, wherein *all* owned *everything* and shared equally as persons. But, I repeat, we do not have such a society. And low wages in the period of depression are a part of the sum of conditions that bring recovery.

It may sound strange to the average person to hear one say that lower wages and longer hours rather than shorter hours and higher wages would increase the compensation of labor in the aggregate. Yet that is the opinion held by many and the view I take. As already indicated, it is low costs that stimulate recovery, cause a cumulative expansion in business activity, so increasing the willingness of people to employ labor and ultimately causing labor shortage and higher pay. In the meantime, the taking on of extra workers at the lower wage makes for a larger total wage payment and relieves unemployment. The newly employed become buyers, and their demand stimulates more production, and the cumulative recovery movement is under way. It should be needless to add that there is an irreducible minimum wage that law and custom may well set as socially necessary, that the decency and self-respect of workers may be maintained.

The attitude of Washington has been pronouncedly pro-labor. I find no fault with that if their pro-labor proclivities had not manifested themselves in a manner to discourage that business initiative *which, alone, under capitalism mind you,* will bring permanent employment to all. It is abnormal that the low phase of the cycle should be marked by long and bitter strikes. Yet such has been the case. In other depressions, workers have been glad to get work when it became available rather than to cease work demanding more pay. It is in periods of prosperity that strikes have been most general and most successful. Moreover, it has been significant that many labor disputes have developed where there have been long years of industrial peace and where conditions, to the outside observer at any rate, do not appear so bad. It makes one wonder whether it is a labor struggle or a radical political gesture.

I know but little about the labor question, but I find much of interest in a somewhat convincing argument in a recent book which says, in effect, that the labor struggle of the future will be within labor's ranks, and will be between those who wish to retain our system of free enterprise and who know that their fate is tied up to capital under that system, and those within the labor group who wish to destroy our present economy and would use the unions as vehicles for the spread of communism. Be that as it may, labor with its demands for a 30-hour week with higher pay, in some measure at least encouraged by those in high authority, has been anything but helpful in stimulating business managements to launch out in those undertakings on which recovery depends.

Fourth. Fear of budgetary inflation and an unbearable tax burden holds back many who would be glad to put their funds to work. A steadily mounting national debt strikes fear into those who would take on help and go ahead. Their failure to take on such help continues the need for relief and provides the occasion for still larger government spending, more borrowing, still larger national debt — and thus the vicious spiral perpetuates itself as it continues.

Raw material for paper — F. S. Lincoln, '22

Fifth. Urged by the need for relief, the desire for reform, and perhaps the influence of practical politics, the government has gone no little distance in a direction probably most disturbing of all to business confidence. I refer to the gradual increase in active government competition with private industry. This has occurred in many lines, and there are in existence some five or six government-owned corporations ready to go ahead and do business. Among them are the Public Works Emergency Housing Corporation, the Electric Home and Farm Authority, Inc., the Commodity Credit Corporation, the Federal Subsistence Homesteads Corporation, the Federal Surplus Relief Corporation, and the Tennessee Valley Authority. There are also, of course, the various credit agencies, such as the Reconstruction Finance Corporation, the Home Owners Loan Corporation, and others — all in some measure entering the various fields of private business. Their corporate powers permit them, if they so desire, to enter into practically any line of endeavor in competition with private agencies. Differences of opinion apparently exist within the Administration as to the wisdom of some of this development, as witness the recent dispute between Messrs. Ickes and Moffett over the procedure to be followed in stimulating the development of a house-building movement. The former insists on extensive government moves, while the latter sees the wisdom of encouraging private builders.

It is, of course, in the field of public utilities that the most extensive measures have been taken. A vast power program is under way which, when completed, will encompass almost all parts of the land. This must have operated to discourage investment in the second largest industry in the country — an industry which in its entirety (communications, power and light, gas and electric railways) has invested capital of over $25,000,000,000. No doubt many public utility officials have been stupidly unwise and unfair in their dealings. Who will defend the Insulls or others who have grossly abused their powers? Such as they have brought down on their heads the punishment which they deserve. But why treat all by the same method? Why stigmatize an entire industry with the mistakes or even the wrongs of the few? And why destroy that industry by unequal and ultimately extravagant government competition? If necessary, kill off the offenders. But in hunting them out, use a rifle instead of a shot gun.

In addition to the foregoing points, there are others of less importance but all operating to discourage and retard action by private enterprise. Even the new Securities Act, sound as it is in principle, and I believe in it thoroughly, has been a source of confusion and alarm to those who would float corporate securities. Whatever in the Act may yet need revision and clarification should receive prompt attention because the heavy industries, whose development and increased output are financed by long-term credits, is the focal point on which recovery depends. And the heavy industries lag in the progress yet made. Out of some ten million unemployed more than half are in those industries and the service industries depending on them.

Sixth. Credit control has passed almost entirely to the Treasury and its subservient Federal Reserve System. I say *its* system because under the conditions now existing, banks that have heretofore determined Federal Reserve policies are largely without voice or influence. In effect, a central bank has been established without the form. Through the power of the Federal Deposit Insurance Corporation and the close coöperation of Mr. Eccles with the Treasury, freedom of action on the part of bankers has all but disappeared. A persistent and determined effort continues to establish the Government as an owner of preferred shares in the nation's banks, to the end that credit, the life stream of business, shall be entirely controlled by Government. This development has been accompanied by confusion of lines of control among Federal banking agencies, adding still further to the perplexities and doubts that exist. Banks no doubt want to lend money. That is evident from the low rates of interest that prevail. When General Motors Acceptances sell on a three-fourths of one per cent basis, one does not need to argue that banks are eager to make loans. That is not where the jam exists. It lies, in my opinion, farther back in the unwillingness of business men to take those risks which are inevitable in a system of progressive capitalism, but which, if successfully overcome, are always followed by the rewards that carry the race forward to higher standards of living with richer compensations for all.

The foregoing influences are to my mind the principal cause for our lagging business improvement. In a vain effort to stimulate action, the Government has poured out billions in loans and public works and for relief. The sums spent for relief have had no substantial effect (and can have none) on permanent betterment; nor do loans made to corporations or individuals who use the money to pay debts help much in stimulating the continuing flow of business funds. And so we find ourselves as we enter the sixth year of this deep depression, confronted by the fact that recovery has not come although our Government has gone to lengths never before dreamed of to assist. It would seem to be clear that our troubles lie in confusion in the order room, in conflicting and opposing forces at work at the controls. Lincoln once said, "A nation cannot exist half slave, and half free." We are discovering that business cannot function under a system half capitalistic and half socialistic. We must make our choice, or rather the Government must make its choice and do it soon, if we are to avoid further drifting, backing and filling, starting and stopping, and getting nowhere. In periods of depression, time has always worked with recovery. Will it do so again? Yes, if (but only if) the tried and proven principles of economics are permitted to work as they have worked during 150 years of capitalism. There is no royal road to follow. We will be on our way when we once again allow the old normal processes to work and are willing, as a people, to pay the price which those processes demand. For the individual, the corporation, and the nation, that price involves difficult and unpleasant undertakings. It means tighten the belt, cut expenses, pay up debts, go to work at whatever wage or for whatever capital return can be obtained under the conditions. It means for a time, a hard life for many, but it is the one and only sure way to the "abundant life," under the only form of economic organization that we know anything about. The time for action has arrived and all the ingredients for recovery are at hand save one — business confidence. That can come quickly, and I have faith that it will some day do so. Perhaps it is nearer than we think. Ford promises a million cars next year. There are indications that business interests and the Administration at Washington are coming nearer to a common understanding of their common purpose. Millions of efficient and willing workers eager for jobs, six years of deferred replacement that has created an enormous shortage of goods, creative minds with all sorts of ideas seeking expression in new developments, many new industries already set to go, and billions of capital and credit ready as always to take the risks of enterprise — these are conditions that have never failed to lift a people out of depression and carry them to new heights of economic progress. Surely we shall not permit barriers of our own making to continue to block the way.

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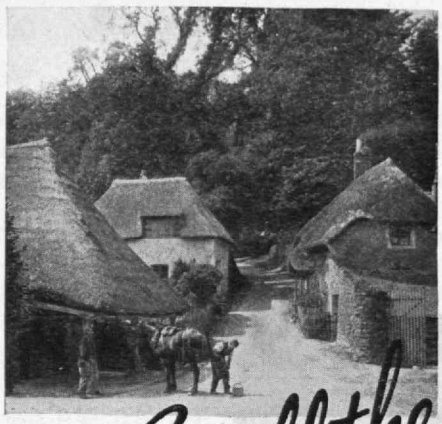

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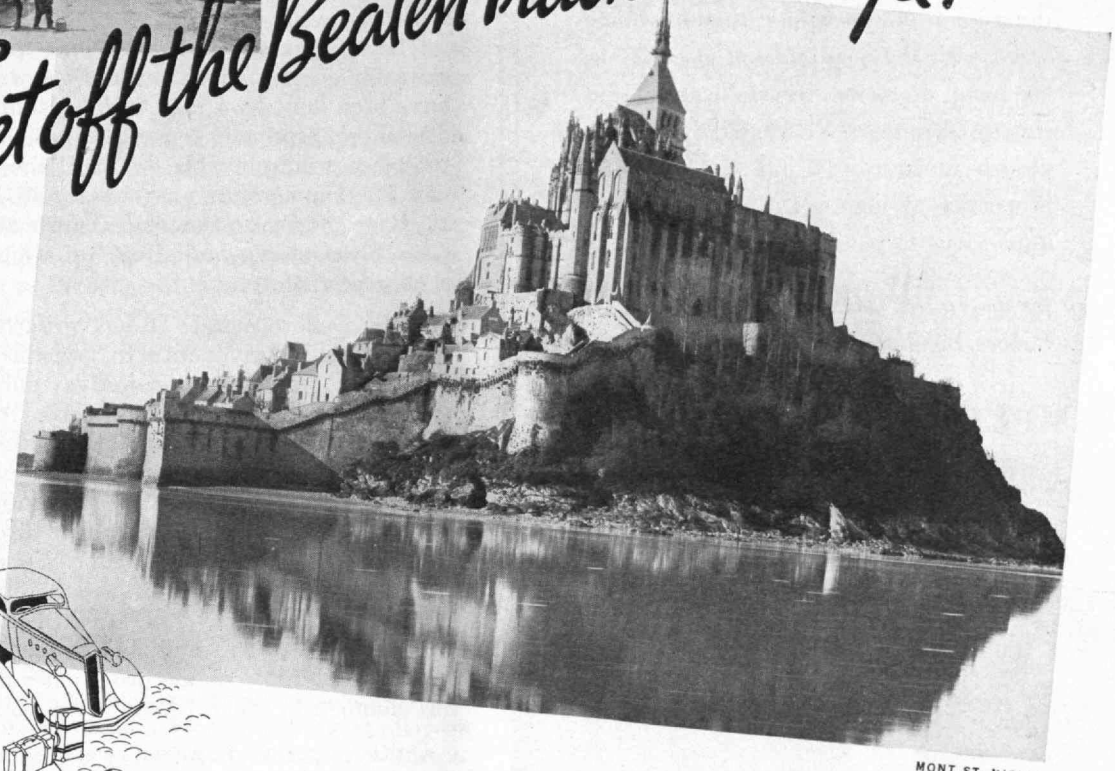

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PLEASONTON'S PANACEA

(*Continued from page 177*)

of the lungs, asthma, general debility of the system were among the ills corrected by "associated blue and sun lights," in the opinion of the sufferers, at any rate. Medical opinion, however, was generally of the sort reflected in the prescription of a St. Paul physician:

"Blue glass, one part; faith, ten parts; mix thoroughly, and stir well until all the common sense evaporates, as the presence of a minute quantity will spoil the mixture; if the preparation be not strong enough, add more faith."

The lay press reported all such matters with considerable delight, albeit much of the writing appears to have been done by a man with his tongue in his cheek. The *World* especially reported events in such a way as to indicate considerable doubt of the whole business, and Mr. Dana's *Sun*, on February 28, 1877, poked fun at it in "Some Testimonials Taken at Random from Gen. Pleasonton's Mail Bag," of which the following is characteristic:

"My Dear General: It has worked like a charm! Subject from early youth to periodic *coups de soleil*, which have frequently impaired my public usefulness at inconvenient seasons, I was impelled to write you for advice. Since receiving your kind letter I have had all my hats roofed with blue glass, and have replaced with the same material the silk on my umbrella. I am now able to inform you that I have got through the month of February without a sunstroke. Your enterprise will be a wonderful success. I believe there is money in it.

Yours ever, J—s G. Bl—ne.

P.S. — Can't you admit me to a share in the venture? I do not feel that I should prove a deadhead. I see various channels in which I know I can be useful."

Quite opposite, however, was the attitude of the *Evening Mail*, also of New York, one of whose proprietors, Clifford Thomson, wrote to the General that Mrs. Thomson seemed to have been cured of hemorrhages of the lungs by the rays, while he himself believed that the treatment had cured him of rheumatism. The weekly edition of the *Mail*, printed in blue ink, was devoted bodily to reprinting from the daily editions articles discussing the sensation. Motive for the *Mail's* activity is to be seen in Thomson's statement of "an unprecedented demand for papers, while the glass dealers are overrun with orders for blue glass. Two wholesale establishments have been entirely exhausted."

Remarking that "the faculty of Harvard College, the management of the Institute of Technology, and all the scientists generally of the town have been experimenting with blue glass during the past fortnight, and the Board of Trade has given the subject its earnest attention, having adopted resolutions complimentary to General Pleasonton," the New York *Daily Graphic* of February 20, 1877, gave a new twist to the misconception of the origin of violet and bluish panes of glass in the windows of Beacon street. The *Graphic's* article, an obvious burlesque, argued that the intellectuality of the region was partly the result of use of blue glass for years even before General Pleasonton had (*Continued on page 197*)

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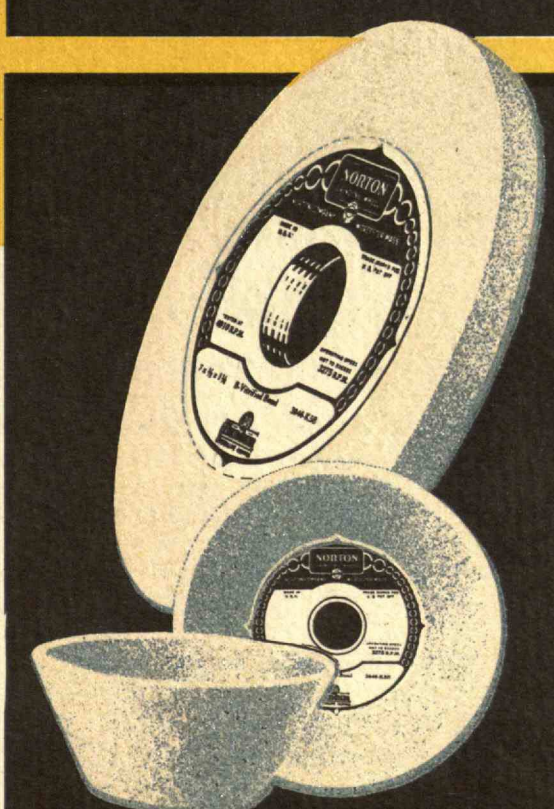

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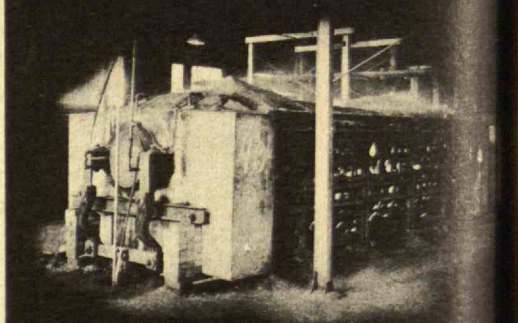


NORTON RESISTANCE TYPE ELECTRIC FURNACE
(Crystolon Abrasive)

PLEASONTON'S PANACEA

(*Continued from page 196*)

started to exploit it. The *Graphic* evidently was not aware that ten years before, Gaffield in the *American Journal of Science and Arts* for November, 1867, reporting experiments extending over four years, had declared:

"Many people suppose that the very distinctly marked purple plate glass in Beacon street was imported of this color. . . . I have never met anyone who has seen glass in original imported packages, of the color made by exposure to sunlight, and until I do, I shall adhere to my opinion, that all purple or rose-colored glass which is seen in our city windows, was made so by said exposure."

While the excitement was in its heyday, and the General was writing to a lady in Chicago explaining to her how to use the rays in the treatment of insanity, this undercurrent of mockery was running in the press, and more definitive opposition was soon forthcoming. Almost as soon as the General became the center of interest, he was forced into the defensive, so that his pen alternated between directions to disciples and denunciations of detractors. Publicity of the theory had covered the United States from Massachusetts to California, and references to it were to be found in the foreign press as well, Germany and England apparently being the chief centers. Naturally, the hack writers who supplied the press of the Nineteenth Century with fiction comparable to that of present day "pulps" were not slow to seize upon the mania for subject matter. The composers of occasional verse also held forth in somewhat lame satiric poems upon the new cure. From this sort of writing to long strings of editorial paragraphs poking fun at Pleasonton and at his theory was a short step soon taken. Material of these kinds was in print all over the country when on February 7, 1877, the Boston *Evening Transcript* carried a column summarizing the theory and sketching its progress in Boston. After remarking on the business acumen of a glass dealer who had cornered the local supply and seen the price of blue glass quadruple in a week, the *Transcript* concluded:

"It will be well . . . for those who have rushed and those who are preparing to rush into a wild series of experiments, to prepare for some measure of disappointment. While there is undoubtedly much virtue in the blue rays of sunlight, everyone may not be affected alike by them, and some may even be injured by the peculiar treatment suggested. Two or three years will suffice to give a fair trial of the capabilities of the blue-glass theory, and we shall then know its precise and permanent place in the catalogue of remedial and stimulating agents."

With the stage thus set, the country agog over marvelous cures, the press exploiting the story although a bit skeptically, glass dealers waxing rich, and General Pleasonton presumably basking in blue waves of popular adulation, objective reason stalked on the scene in the person of Mr. Gaffield.

On February 12, the *Transcript* carried an article by Mr. Gaffield, asking that he be permitted, "before the account is closed, and the verdict (*Continued on page 198*)

PLEASONTON'S PANACEA

(*Continued from page 197*)

of the community made up, to put in a little evidence on the other side." After this mild preface, he proceeded with a four-column discussion of the mania, recapitulating Pleasonton's claims, analyzing his evidence, and demonstrating the fallacy of his position. This, the first serious and reasoned attack on the nucleus of the popular delusion, was jubilantly received by the *Transcript*, which saluted its author in an editorial apostrophe such as few men are fated to receive. Captioned "A Broken Bauble," the editorial declared:

If ever anything glass was smashed to smithereens, it is the blue-glass delusion, at the sturdy hands of honest Thomas Gaffield. Mr. Gaffield never applied his expert's knowledge of glass and his hearty contempt of humbug to better service. . . . There have been symptoms that the blue-glass mania was about to have as extended and fatal a run as the tulip mania or the hen fever, or any other of the popular delusions which have from time to time been epidemic in the world's history. Already what blue glass was in the market was assuming fancy prices, and enterprising makers and dealers were advertising "a few more packages left." Already the professional valetudinarians everywhere were taking the measure of their window sashes and preparing to throw more good money out at the window; as though the very thing they did *not* want of all things in the world was more *blue* of any kind! Thanks, Thomas Gaffield, for thy painstaking and thorough-paced exposure, than which nothing less could have completely sufficed to show how unworthy even of thine honest indignation was this nine-days' wonder — this now ridiculous hoax, offspring of the brain of either a madman or a knave! Future generations of what otherwise might have been blue children shall call thee blessed! The quality of God's sunlight shall not be strained. The hypochondriacs shall not further blight their brains and mildew their souls under blue glass, but shall be driven merrily forth, whipped of hearty and wholesome laughter, into the healing sunlight — actinic rays and all — that fed the world of life and beauty ages before the birth of the original blue-glass maniac, and will continue to nourish it ages after the blue-glass bauble that Thomas Gaffield has smashed shall be forgotten.

The "thorough-paced" mind of Mr. Gaffield, however, was not so easily to be satisfied as were the journalists of the *Transcript's* staff of the time; hence, at intervals of a week, three more broadsides came from his pen. As a unit, the four essays tore Pleasonton's book to pieces by the use of plentiful citations, made clear his false premises, and finally dismissed his conclusions with scorn. The General's confused reasoning about his pigs, the justified charge that the famous grapery was anything but scientifically controlled, the contention that none of the reported cures had been effected under accurate observation, the absurdity of the General's speculative theories of heat and electricity, the triviality of much of the General's evidence — these matters composed the bulk of Gaffield's attack.

That Gaffield's activity was not altogether pleasantly received is indicated by the opening of his second essay, which replied to complaints of glass dealers that the articles were cutting down demand for blue glass. "Our sufficient answer to many valued friends of our old guild," said Gaffield, "is, that we cannot in justice to ourselves allow our loyalty to (*Continued on page 200*)

PLEASONTON'S PANACEA

(*Continued from page 198*)

truth and conscience to bend to any feelings, however warm, of personal friendship and regard." An account of a call which he had made on Pleasonton two years before, of the impression which he then gained — that Pleasonton was an enthusiast — and of evidence corroborating this impression made up the rest of this essay. The third in the series undertook to demonstrate that Pleasonton's theory was discordant with the laws of nature. The fourth summarized Italian experiments with the use of colored light in the treatment of the insane, and pointed out that since Pleasonton had lately offered to license practitioners under his patents, he was undertaking to commercialize his theory. It referred also to the *Scientific American's* recent articles denouncing the theory. This magazine, as early as June 17, 1876, had published an article reviewing Pleasonton's book and dismissing it as a burlesque of science; this, however, had appeared before the popular mania for the glass had begun. When the furor was at its height, the *American* in its issue of February 24, 1877, nearly two weeks after Gaffield's first article, had inaugurated the series mentioned.

General Pleasonton undertook a reply to the *American's* attacks, in an open letter published by the New York *Evening Mail*, in which he made much of the fact that he had been accused of deception, and buttressed himself with the claim that the Patent Office had seen fit to grant him letters patent. This reply to the *American* concluded with passing reference to the Gaffield articles, which did not name Gaffield, but which did declare Pleasonton's readiness to join Buffon, Archimedes, Cervantes, and Columbus, whom he cited as others who had been subjected to ridicule. Although Mr. Gaffield thus did not draw the General's fire, he was regarded by the press as the leader of the opposition to the blue-glass delusion; the *Journal of Commerce*, for example, advertised in March a series of interviews with the General by a staff correspondent, displaying prominently in the advertisement the line "Gaffield vs. Pleasonton."

John Tyndall, who had been quoted by the Chicago *Inter-Ocean* on March 21, 1877, as saying that "the whole thing is a delusion," summed up Mr. Gaffield's share in the exposure in a letter to the Bostonian with whom he had carried on a scattered correspondence for some ten years. Writing on April 4, 1877, apparently to acknowledge copies of the Gaffield articles, he said: "You have done a very good work in exposing this nonsense. I am much obliged to you for your friendly thought of me."

The last of the Gaffield series was published on March 14, 1877. To give the series too much credit for ending the rage would be easy; unquestionably it helped, and to it belongs credit for starting the serious effort needed. The delusion was fatally scotched by this series and that of the *Scientific American*; it continued to exist for some weeks into the spring of 1877, but its great force was gone. The story of its emasculation is that of all similar fads; imitators and revisionists modified it, found it losing vitality, and sought to rework it by means of further sensationalism, until at last nothing remained.

General Pleasonton, after the collapse of the sky-blue bubble, dropped out of the news. His death occurred on July 26, 1894. Sturdy Thomas Gaffield, once he had shattered the bauble, returned to his studies of glass and its properties, and to his observation of the affairs of the young and struggling Institute.

A CANAPÉ OF CONUNDRUMS

(*Continued from page 179*)

BUT to get back to the problems concerning which there can be no argument, we may analyze the situation (I) in which the elastic ball dropped 16.1 feet onto a rigid, horizontal surface. The distance s through which a ball falls subject to the traditional assumptions is given by the equation

$$s = \tfrac{1}{2}gt^2$$

in which s is measured in feet, g is given in our problem to be an even 32.2, and t is the time in seconds. Substituting for g and solving for t, we have

$$t = \sqrt{\frac{s}{16.1}}$$

and since s in our problem is equal to 16.1, we arrive at the not very startling conclusion that the ball took one second for its first downward drop.

From the statement of the elasticity of the ball it is clear that the height of the rebound will be equal to $.01s$, or .161 feet. Substituting this in the last equation above gives

$$t = \sqrt{\frac{.161}{16.1}}$$

or

$$t = \sqrt{.01}$$

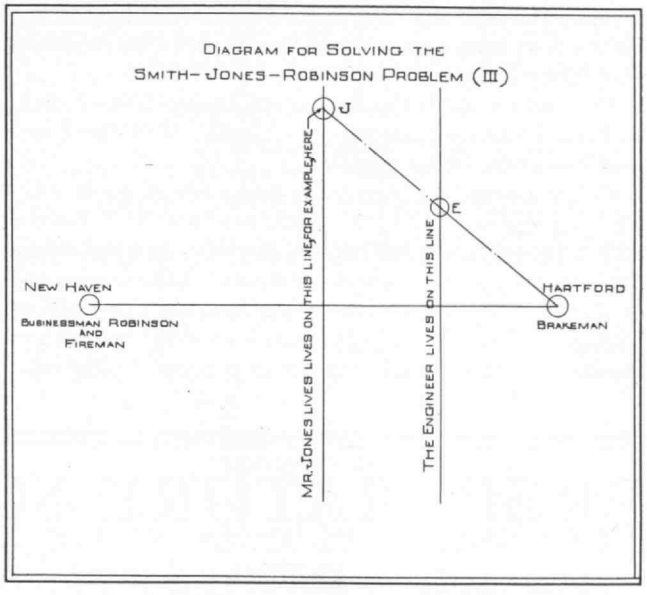
or, finally, that the rebound took one-tenth of a second.

Of course, falling from the height of this rebound takes another tenth of a second so that when the ball strikes the rigid, horizontal surface the second time, 1.2 seconds have elapsed.

Now for the second rebound. The distance s will be .01 of .161 or .00161, substitution of which value in the second equation above gives t equal to .01, the time taken by the ball for its second upward trip. The descent following this rebound will take another .01 seconds, making. 02 seconds for this round trip, and 1.22 seconds elapsed time so far.

Now it begins to be apparent that this analysis is going to go on forever, even though the ball is not. The next round trip will take .002 seconds, the next .0002, and so on *ad ultimum*. That is, the total elapsed time will be 1.2222 . . . , which is exactly one and two-ninths seconds.

As for the two identical-appearing gilded balls (II), they may be distinguished by observing the effect of their differing moments of inertia. If the mass of one of them is distributed nearer the periphery, it will have a larger moment of inertia than the other. The hollow copper ball would be a better flywheel than the solid aluminum one. So to tell one from the other, it is necessary only to determine which is the harder to start (or stop) rotating. To do this with a minimum of auxiliary apparatus, start them both rolling down an inclined plane. To roll they must rotate, and the one which is easier to start rotating will outdistance the other. That will be the solid aluminum ball.



The problem with the Engineer's name (III) may require a diagram for solution. At New Haven put Businessman Robinson and the Fireman. At Hartford put the Brakeman. Connect New (*Concluded on page 202*)

A CANAPÉ OF CONUNDRUMS

(*Concluded from page 201*)

Haven and Hartford with a straight line, and Businessman Jones must live on the perpendicular bisector thereof. The Engineer lives on a line parallel to Mr. Jones's locus, half-way between Jones and Hartford. If, for example, Mr. Jones lives at *J* (see diagram), then the Engineer lives at *E*. So far, we have accounted for the Fireman, the Brakeman, the Engineer, Mr. Jones, and Mr. Robinson, and we haven't yet found the man who lives nearest the Engineer. It must be Businessman Smith. If the Brakeman's name were Smith, then Businessman Smith would be the one who receives a salary of $8,000 per year. Since the Engineer could not receive a salary just a third of $8,000, the Brakeman's name cannot be Smith.

Since the railroad man named Smith has beaten the Fireman at ping-pong, the Fireman is not the railroad man named Smith.

Shall we go on? If the Brakeman's name is not Smith, and the Fireman's name is not Smith, then the Engineer's name must be Smith.

To get around setting up too many equations in solving the problem of the man in the rowboat (IV), build a railroad track along one bank of the river and put a long passenger train on it going downstream at the same speed as the current. A man leaves the baggage car walking backward along the train at a pace somewhat faster than the speed of the train, so that (with reference to the telegraph poles alongside the track) he is traveling in the opposite direction to the travel of the train. As he passes through the dining car, he drops his hat in a seat and keeps on walking toward the rear of the train. Ten minutes after he drops his hat he turns about and walks back to it, maintaining a uniform pace. Since he spent ten minutes walking away from his hat, it will take him ten minutes to get back to it at the same pace, so he will have been gone from the hat a total of 20 minutes. If during that 20 minutes the train has carried his hat one mile, the train must be going three miles per hour.

Put the man back in his rowboat, and the hat back in the stream, and following the same reasoning process will result in the finding that the current in the stream must have a velocity of three miles per hour. Consequently, one who sees the relationships involved can, when confronted with the problem, say simply that if a man rows away from a floating hat for ten minutes and then turns around and rows back to it, he will be gone from the hat for 20 minutes. If during that time the stream carried the hat one mile, the current must be going a mile in 20 minutes.

Maybe the problem of the sailor and his counterbalance (V), as stated, is just as obvious. Nevertheless, there have been plenty of arguments about it. If there is no doubt about the answer as the problem is stated, will the same be true if a very heavy chain is substituted for the weightless rope, with friction still neglected?

Even if there can be no doubt as to the correct solution, it is still a good problem.

PROFESSIONAL CARDS

TECHNOLOGY MEN IN ACTION

CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

Beginning of the "Stein Song"

¶ Through the kindness of Professor A. H. GILL '84 and Mrs. Frederic F. Bullard, The Review has fallen heir to some historical notes concerning the origin of Tech's "Stein Song." It seems the song was not written originally for any particular school or college, but was inspired by the reading of what its author, the late FREDERIC F. BULLARD '87, considered an inadequate musical setting for the words written by Richard Hovey of Dartmouth. The new music was written during the three weeks preceding March 4, 1898, and that is as close as the human memory unaided by documentary evidence can fix this important date. It was twice submitted to the Boston Music Company and refused by them, Mr. Schirmer assuring Mr. Bullard it was no good and could never succeed. Mrs. Bullard hopes sometime to have these letters of refusal framed and hung in an appropriate place to illustrate the sagacity of publishers!

As the story goes, Arthur Wellington (basso) first sang the song as a solo in public and had the first autographed copy. Finally, Ditson and Company accepted it on first sight and there is a record of sending a copy to Richard Hovey on April 16, 1898, so evidently no time was lost in publishing it.

"From at least a half-dozen colleges," writes Mrs. Bullard, "I have received questions as to whether the song was written for them. Harvard, Tufts, and Yale have in turn claimed it, the latter because Mr. Hovey received an ovation there as writer of the words; Tufts, because Mr. Bullard often drilled the Glee Club, his brother-in-law being professor of music there; as for Harvard — probably because they try to claim anything worth while; surely there can be no other reason."

Professor Gill well remembers hearing about the first actual rendering of the song. On the occasion of a Boston Latin School reunion at the Exchange Club, the "Emanon Quartette" (consisting of Mr. Bullard, Leo R. Lewis, Bruce Hobbs, and Hollen C. Spaulding) were requested to furnish music for the edification of the "boys," which included many names big in Boston history. The rehearsal was held in Mr. Bullard's house on Pinckney Street, Tom Hurley taking the place of Hobbs. Here the "Stein Song" was sung from the original manuscript, which Mr. Bullard corrected and modified as it seemed necessary. The story of the singers' enthusiasm and Mr. Bullard's modest statement that he thought it would prove "a good thing" is still fresh in the memory of Professor Gill.

In the News

¶ ROBERT F. ELDER, associate professor in M.I.T.'s Department of Business and Engineering Administration, on being elected Vice-President of the American Marketing Society at the annual meeting held in Atlantic City, November 30 and December 1.

¶ ROBERT H. RICHARDS '68, distinguished metallurgist and oldest living graduate, on his election to honorary membership in the Engineers Club of Boston. Professor Richards, who is 90 years old, is the only living person who has been continuously affiliated with M.I.T. since its founding. He is a member of the first class to graduate from M.I.T., and previous to his retirement in 1914 as professor emeritus, he was for 46 years a member of the Institute Faculty and for 41 years Head of the Department of Mining.

¶ CHARLES E. SMITH '00, Vice-President of the New Haven Railroad and President of the Alumni Association, 1934–35, on becoming President of the New York Railroad Club.

¶ LAMMOT DUPONT '01, for his opinion that each government should make itself its own, sole munitions manufacturer. "If a government has the right to enter any business, it has the right to be in the business of manufacturing its own national defense." Such a goal, while in itself desirable, leads to a host of complications which must be ironed out, nationally and internationally, but now, in peace, is the time to approach this problem of world-wide importance. Mr. duPont states the case in the New York *Times* of November 19; the answer lies in the future.

¶ MERTON L. EMERSON '04, on being named regional compliance director of the NRA for New England.

¶ DONALD W. DOUGLAS '14, on being chosen to deliver the 1935 Wilbur Wright Memorial lecture to the Royal Aeronautical Society, in the South Kensington Museum in London where the original Wright airplane is housed. This honor will place Mr. Douglas' name in the select list of American and European aviation leaders who have been called on to discuss world-wide flying trends. He will discuss the new high-speed transport airplanes, many of which, bearing his name, are in operation throughout the world. He is the fourth American and second M.I.T. alumnus to be selected for this honor (Jerome C. Hunsaker '12 having previously delivered one of these memorial lectures).

Appointments and Elections

¶ EUGENE C. HULTMAN '96, appointed Chairman of the Metropolitan District Commission (Boston, Mass.). This is his sixth appointive public position since 1920. Mr. Hultman's first position was that of surveyor with the old West End Street Railway Company, and in a surprisingly short time he became Vice-President of the road. His first political office was with the Quincy City Council, to which he was elected in 1899. He spent three years each in the State House of Representatives and the State Senate. In 1920 he was appointed Emergency Fuel Commissioner, then Chairman of the State Commission on the Necessaries of Life. He has been Fire Commissioner, Building Commissioner, and Police Commissioner.

¶ JEROME C. HUNSAKER '12, appointed a member of the Executive Committee of the Applied Mechanics Division of the American Society of Mechanical Engineers for 1935, and a member of the Editorial Board of the *Journal of Applied Mechanics*. He has also been appointed a member of the Aircraft Activity Committee of the Society of Automotive Engineers for 1935.

¶ JAMES A. BURBANK '16, appointed superintendent of the engineering and inspection division of the Travelers Companies.

¶ ROBERT E. WILSON '16, appointed Vice-Chairman of the Board of Directors of Pan American Petroleum and

Transport Company, eastern subsidiary of the Standard Oil Company of Indiana, where he has been Director and Vice-President in charge of research and development.

Dr. Wilson's advancement again calls attention to the position M.I.T.'s chemical engineers hold in the oil industry.

Both the President and Vice-President of the Sun Oil Company, for example, are Technology men (J. HOWARD PEW '03, President, and A. E. PEW, JR. '22, Vice-President). Technology men are also the Vice-Presidents for Sinclair Refining Company (GEORGE H. TABOR, JR. '13), Standard Oil Development Company (ROBERT T. HASLAM '11), the Skelly Oil Company (RICHARD T. LYONS '17) and the Texas Company (RODOLFO OGARRIO '08).

In a recent issue of the Union Oil *Bulletin*, devoted to that company's new paraffin-base oil manufactured from California wax-bearing crudes, the following Technology officers and members of the company are listed as participating in the development: WILLIAM L. STEWART, JR. '23, Vice-President in charge of manufacturing; ROBERT E. HAYLETT '15, Director of Manufacturing; CHARLES C. MOORE '20, research supervisor; BLAIR G. ALDRIDGE '16, design engineer for the vacuum, de-waxing, and solvent treating units; EDWARD G. RAGATZ '21, directly connected with the design and operation of the vacuum and solvent treating units; LESTER G. METCALF '12, manager of refineries; DAVID R. MERRILL '21, manager of research.

¶ LEWIS W. DOUGLAS '17, who resigned as Director of the Budget on September 1, elected Vice-President and Director of the American Cyanamid Company.

¶ GEOFFREY J. GREENFIELD '22, elected President of the Coke Oven Managers' Association at its annual meeting in London.

Written

¶ About FRANCIS H. APPLETON '71, an account of his life, in the alumni magazine of St. Paul's School, Concord, N. H., as the school's oldest living alumnus.

¶ About GEORGE A. ORROK '89, an article in *Mechanical Engineering* for November, which gave an account of the presentation of an inscribed silver dish for his services in stimulating the development of research in the properties of steam and the international steam table conferences. (See class notes for complete account with citation.)

¶ By ALLEN FRENCH '92, a book entitled "The First Year of the American Revolution"; Houghton Mifflin.

¶ By THEODORE H. TAFT '01, Professor of Heat Engineering, M.I.T., a book entitled "Elementary Engineering Thermodynamics with Problems"; John Wiley.

¶ By DONALD S. TUCKER, Professor of Political Economy at M.I.T., a paper on "One Aspect of the Consumer Problem," delivered before the Boston branch of the American Association of University Women, January 12.

DEATHS

** See class notes for account.*

¶ WILLIAM Q. WALES '72, December 14. Following his graduation from M.I.T., he and the late John G. Brown founded the firm of Brown-Wales Company, of which he was President. Mr. Wales was a director of the Franklin Savings Bank of Boston, the Home for Aged Men in Boston, and the Boston Children's Friend Society.

¶ WILLIAM B. POTTER '79, November 12.

¶ JAMES C. SUNDERLAND '83, December 22. Mr. Sunderland, one of the older architects of Kansas City, was associated for some years with Louis Curtiss, designer of the Hotel Baltimore, later forming the firm of Edwards and Sunderland. During the last 20 years he was in practice by himself, designing many warehouses and office buildings. In his earlier architectural career, he specialized in apartment structures.

¶ FREDERICK W. PUTNAM '86, August 21.

¶ GEORGE F. SAUNDERS '87, December 25. Mr. Saunders was grandson of Daniel Saunders, founder of the City of Lawrence.

¶ EDWARD C. HOLTON '88, world-famous paint chemist, November 30. Mr. Holton was born in Winchester, Mass., and was graduated from the M.I.T., where he taught chemistry for nearly four years before entering the employ of the Sherwin-Williams Company as its first chemist. In 1896 he installed and operated the company's first dry color plant, and in 1897 assisted in installing and operated its first varnish plant. During the Spanish-American War he was sergeant in C Troop, 1st Ohio Volunteer Cavalry; during the World War he acted as adviser to the War Industries Board.

"The period from 1894 to 1914 was one of great expansion for the company, and Mr. Holton developed in the laboratory many of its new products. In 1899 he became chief chemist of the enlarged technical division, serving in this capacity until his death. In 1916 he was awarded the President's Prize of the Sherwin-Williams Company for outstanding research work and developments on insecticides. He had numerous patents on insecticides, fungicides, pigments, paint oils, varnish resins, and so on, and was the author of many articles along these lines.

"Mr. Holton was a charter member of the Cleveland Chemical Society (now the Cleveland Section of the American Chemical Society), and held various offices in it, including the presidency. He was a Councilor of the American Chemical Society, and a member of the American Association for the Advancement of Science, the American Society for Testing Materials, the American Institute of Chemical Engineers, and the Society of Chemical Industry.

"For 30 years Mr. Holton lived in Olmsted Falls, Ohio, where he was active on the Village Council, the Board of Education, the Village Planning Commission, and was a member of the Board of Trustees of the Congregational Church. He made a hobby of farming, which offered him a practical and interesting laboratory for the study of insecticides. He was fundamentally a scientist, a man of wide sympathies and comprehensive interests."

¶ KALUDY SPALDING '89, September 20.

¶ HARRY B. RUSSELL '94, Boston architect, December 15.

¶ TIMOTHY J. DRISCOLL '99, October 24.

¶ FRANK J. HUSE '99, in October.

¶ HORACE T. MUZZY '02, October 20.

¶ THOMAS H. O'HALLORAN '03, November 13.

¶ STANLEY T. HYDE '05, December 26. A prominent Navy Yard draftsman and pioneer resident of Bremerton, Wash., Mr. Hyde had been employed in the Public Works Department of the Navy Yard for the past 25 years, coming from the Watertown Arsenal, where he began his work for the government and where he was employed for two years. Besides his widow, he leaves his mother and two brothers.

¶ ROSS CAMPBELL '14, October 15.

¶ EDWARD L. FONSECA '15,* December 6.

¶ STEPHEN J. MILLER '23,* November 28.

¶ JOHN A. JAMESON, JR. '28, September 26.

¶ RICHARD L. SPOFFORD '28, December 13.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

Notice to New Jersey Alumni

A movement is under way to form a branch of the New York Technology Club in Newark, N. J., in order that New Jersey alumni may have easily available an opportunity to meet together. Already several informal meetings have been held. This group is anxious that other alumni be informed about the proposal for a regular branch club with scheduled meetings. The two men with whom alumni should communicate are J. F. Maguire '17, the Congoleum Company, Kearney, N. J., and W. I. McNeill '17, Colgate-Palmolive-Peet Company, 105 Hudson Street, Jersey City, N. J.

The New York Club is in cordial agreement with the plan and one of its directors, A. T. Glassett '20, met with interested alumni at Mr. Maguire's house in December.

Salem Meeting

The Salem group of alumni had the honor of being the first to hold a meeting and organize as a district group under the proposed plan of greater activity of alumni around Boston. It will be recalled that the special committee, of which Professor L. F. Hamilton '14 was Chairman, devised the scheme for the formation of these district groups with a leader who would attend meetings of the Alumni Council and direct the activities of his group. These groups would tie in with the organizations of undergraduate students, or commuters as they have been called, so that the alumni group and the undergraduate group would correspond district by district, would get to know one another, and promote mutual progress.

The meeting of the Salem group on Friday evening, November 2, took the form of a dinner at Ebsen's, Salem Willows. Professor Hamilton and Secretary Locke were present and showings were made of the Technology movie and the Edgerton high-speed movie. An atmosphere of ultra-sociability prevailed and it was decided to hold at least two meetings a year. A committee was elected to take charge. Mr. Cilley was elected as leader of the group to attend meetings of the Alumni Council. Various other special features were introduced at the meeting which made it all the more enjoyable, including an oyster-eating contest, races, and various presentations of gifts more or less valuable. The self-appointed committee in charge of this first informal gathering consisted of: P. Cilley '29, H. G. Hamilton, Jr. '29, C. G. Root '32, B. G. Philbrick '02, H. M. Haley '04, T. K. Fitzpatrick '33, but the moving spirit that was really behind the affair appears to be H. M. Haley. Out of a possible total of 60, 35 were present.

M.I.T. Association of Japan

At the last meeting of the Club, held October 9, we decided to change the name to that given above. — There is also another item I should like to present: Our association gave birth to the Osaka branch of the M.I.T. Association of Japan, which includes the residents of Osaka, Kyoto, and Kobe, with 19 members in number. Our President, Takanaga Mitsui '18, Kazuo Minami '32, and myself went to Osaka on October 18, when the branch was created and the following officers elected: President, Nobuo Yamamoto '19, c/o Sumitomo Goshi-Kaisha, Kitahama, Osaka; Vice-President, Ewazo Suzuki '11, Suzuki and Company, 10 Kyo Machi, Kobe; Secretaries, Ryohei Arisaka '17, Kawanis Aircraft Company, Hyogo, Kobe, and Kaworu Kikuchi '28, c/o Ohbayashi Gumi Ltd., Kyobashi 3-Chome, Higashi Ku, Osaka. Nobuo Yamamoto is now one of the directors of the Sumitomo Goshi Kaisha. Our association is taken care of by Mitsui in Tokyo, and by Sumitomo in Osaka, and we feel that we are very fortunate for that. — MASARU KAMETANI '25, *Secretary*, Mitsui Gomei Kaisha, 1 Muromachi Nihombashi, Tokyo, Japan.

Technology Club of Central Florida

The Club had an informal dinner meeting, November 24, at Columbia Restaurant. H. M. Mansfield '83, President of the Club, presided at the meeting, which was attended by 16 members from various cities on the West Coast and from the central part of the State. Franklin O. Adams '07, Tampa architect, talked on the problem of water-proofing buildings in this climate, and there was general discussion afterwards.

Those in attendance were: H. M. Mansfield '83, M. R. McKinley '19, W. H. Leathers '03, Laurence P. Geer '15, J. J. R. Bristow '14, William H. Mills '34, William R. Grunwell '28, N. J. Mackler '17, Fred D. Mendenhall '14, W. B. Newell '17, C. V. Turner '07, A. C. Nichols '08, Walter N. Munroe '06, James Talbot '96, Theodore H. Skinner '92, Franklin O. Adams '07. — M. R. McKinley '19, *Secretary*, Tampa Electric Company, Tampa, Fla.

CLASS NOTES

1877

Arthur Wilder Thayer died in Dedham, Mass., November 17, 1934. His death was the result of an accident which occurred as he was returning from the Norfolk Golf Club on the Providence highway. He fell from his bicycle and suffered a severe injury. He was taken to the Dedham Emergency Nursing Association and died there. The funeral services were held at First Church (Unitarian), November 20. The interment was at Brookdale cemetery.

Mr. Thayer was born in Dedham, Mass., August 26, 1857, the son of John Henry Bass Thayer and Mary Smith Wilder, and for 77 years he resided on High Street in the house in which he was born. His early education was obtained in the Dedham schools where he was graduated from the high school in 1873. As a young man he prepared for Harvard College, but later entered M.I.T. and studied civil engineering. Musical talents, however, inherited from his father, who was organist of St. Paul's Episcopal Church and from William Billings, an ancestor, composer of some of our earliest hymns, caused him, after leaving the Institute, to pursue musical studies. He studied singing with Dr. C. A. Guilmette, 1876 to 1879; concert and oratory with Charles B. Adams, 1880 to 1881; composition with G. M. Chadwick, 1881 to 1882; orchestral conducting with Emil Pauer in Paris 1896. In Paris also he studied singing with Delle Sidi and Sibriglia, and in London with George Heneschal, 1894. He played the organ at St. Paul's Episcopal Church in Dedham from 1874 to 1877. He was a bass soloist and for 12 years was a member of the Apollo Club of Boston and for a shorter time of the Cecilia Society. From 1881 to 1893 he was in charge of music, teaching in the Dedham schools from 1881 to 1884, in the Milton schools from 1884 to 1887, and in Boston, teaching singing in 1882.

He has sung in many churches and on many public occasions. He organized and trained the Woman's Symphony Orchestra with a membership of 60. He has written many songs, part songs, and church music, many of which were published. The most important composition from the pen of Mr. Thayer was the additional orchestration to Handel's oratorio, "Belshazzar," made for the Handel and Haydn Society. He took part in many musical festivals and choral groups under Carl Zerrahn. In the absence of Zerrahn he substituted for him. As a conductor, he won rapid recognition, organizing and training glee clubs and choral societies in Massachusetts and Rhode Island. Among these were the Harvard Glee Club, the Schubert Club of Dedham, and the Dedham Glee Club. These last two he trained and conducted over a period of 23 years. One thousand voices were assembled and trained by him for the 25th anniversary of the first Boston Peace Jubilee and 500 voices for the anniversary of the second Peace Jubilee. The chorus of local voices that helped celebrate the 250th anniver-

1877 Continued

sary of the founding of Dedham in 1886 was trained by him, and he also composed the ode that commemorated the occasion. He was a member of the Harvard Musical Association, the Alumni Association of the M.I.T., the Apollo Club of Boston; he was for many years affiliated with the Constellation Lodge of Free and Accepted Masons, and a few years ago was presented with a specially designed medal in recognition of his 50 years as organist of the Lodge. In the Dedham Institution for Savings there is in safe-keeping a baton used by Mendelssohn, presented as a gift to Mr. Thayer following the death of Dr. Guilmette. It was given to Dr. Guilmette following an early performance of "Elijah" conducted by Mendelssohn at Birmingham, England, many years ago.

Wholly apart from music were Mr. Thayer's mechanical interests and in recent years he became absorbed in a device for softening the recoil from fire arms and helped bring it to perfection. For a few years he practiced surveying in Dedham. His continued interest in the Institute was attested by his presence at the class banquet last June. — November 12, 1891, Mr. Thayer married Annie R. Fisher, and on May 8, 1896, their son, Arthur Fisher Thayer, was born. These two survive him and to them the class extends sympathy.

We are sorry to report as the fifth death in our class this year that of George Freeman. The following account appeared in the New York *Times*, November 18: "Sarasota, Fla., November 16 — George Albree Freeman, architect, died at his home here at noon today after an illness of several months. — Mr. Freeman was the designing architect of the new Sarasota post office, said to be one of the most beautiful structures of its kind in the South. He was graduated from the M.I.T. in 1877 and came here from Stamford, Conn., where he had practiced his profession for more than 12 years. He was born in New York City. — A widow, Mrs. Ethel H. Freeman, and a daughter, Miss Albree Freeman, survive." To Mrs. and Miss Freeman also, the class extends sympathy. — BELVIN T. WILLISTON, *Secretary*, 3 Monmouth Street, Somerville, Mass.

1883

In the absence of replies from classmates, the Secretary is forced to supply somewhat toward the gaiety of nations, so here is his Christmas card:

* * *Yuletide* * *

O, Christmas comes but once a year;
"Thank God for that" I say, my dear:
I see in the shops a thousand things,
Mechanical toys, gold watches and rings
That I wish to buy and give to the poor
And thus my place in Heaven insure.
See turkeys and spinach and things to eat,
And books and baubles that can't be beat.
I think: "Gee whiskers, 'twould be some fun
To buy these goods if I had the Mun":
But there is that damned old Budget, you know,
That always is saying "Go Slow, Go Slow".
Just think of the hell there would be to pay
With an unbalanced Budget on Christmas Day!

HARVEY S. CHASE, *Secretary*, Bridge Street, South Hamilton, Mass.

1887

The Secretary is without news at this time from any members of the Class with the single exception of William B. Blake, who has returned to St. Petersburg, Fla., for the winter after a summer spent in his old home city of Newburyport. — NATHANIEL T. VERY, *Secretary*, 14 Currier Road, Lynn, Mass.

1889

Richard Hooker died on October 25. The Secretary has no information aside from the following notice in the Boston *Herald*. "Richard Hooker, 61, an architect, living in a Back Bay hotel, was found dead yesterday in the bathroom of his suite. Police said that he was despondent following the death on Monday of his mother, with whom he lived. Hooker was last seen Tuesday afternoon following funeral services for his mother at the Forest Hills crematory chapel. Wednesday morning when hotel attachés received no answers to their calls the suite was entered. Hooker was found on the floor with a large cut in the neck. Death by suicide was given as cause."

Victor Ray died on October 26. The following account of his life appeared in a Cincinnati paper. "Dr. Victor Ray, Sr., 3584 Mooney Avenue, nationally known ophthalmologist, died suddenly at his home last night of a heart attack. He was 68 years old. As widely known in social as in professional circles in Cincinnati, Dr. Ray's death brings to a close a useful and interesting life. Born in New York City in 1866, Dr. Ray was taken to Europe by his parents as a child. The first 16 years of his life he passed in England and on the Continent. Returning to the United States when he was 16 years old, he decided to take up the study of engineering. After being graduated as an engineer from the M.I.T., he took a position with the Anaconda Copper Company, in Montana, where he rose to the position of General Superintendent. In the midst of a successful career as an engineer he elected to take up the study of medicine. After studying at the University of Cincinnati and various European universities, he began the practice of ophthalmology in Cincinnati. Dr. Ray's patients came from all parts of the United States. He was recognized as one of the foremost authorities in the country on cataracts. He was associated in the practice of medicine with his son, Dr. Victor Ray, Jr. Their offices were in Carew Tower. He was a former President of the Cincinnati Academy of Medicine. Until last year, when he resigned, he was the Director of Eye Service at General Hospital. In addition to his son, Dr. Ray is survived by his widow, Mrs. Mary Elizabeth Ray, and two daughters, Miss Louise Ray, who lived with her father, and Mrs. Frank W. Case, 2750 Erie Avenue."

Mechanical Engineering for November printed the following article relating to Orrok under the title, "George A. Orrok Honored." "A pleasant and unexpected feature of the dinner in connection with the Third International Steam Table Conference, at the Hotel Astor, New York, September 19, was the presentation of an inscribed silver dish to George A. Orrok, for his services in stimulating the development of research in the properties of steam and the International steam table conferences. The A.S.M.E. Special Research Committee on the Thermal Properties of Steam was formed in 1921 as a result of recommendations made at a conference at Harvard University called by Mr. Orrok. (See *Mechanical Engineering*, August, 1921, pp. 553 and 554.) Mr. Orrok served as chairman of this committee until 1929, when Alex Dow, president of Detroit Edison Company, assumed the chairmanship.

"Dr. Harvey N. Davis, who acted as toastmaster at the dinner, made the presentation to Mr. Orrok. Asking his audience to imagine him clothed in academic garb, Dr. Davis read the following citation: George Alexander Orrok, honored lecturer at a score of institutions of learning all over the world, from no one of which did you ever deign to graduate, whose words of wisdom to students are perhaps the more eagerly heard for that very reason, generous and effective helper and adviser of every aspiring engineer who crosses your path, be he young, or old, and above all, father of the American Steam Research Program which was conceived in your vision and courage, and born of your devoted labor. By virtue of the authority vested in me by all these your friends, I hereby confer on you, this token of our affection and esteem, the inscription on which is, 'In tribute to George A. Orrok, Engineer, whose vision, energy, and enthusiasm promoted the union of science and engineering by bringing together, in the spirit of James Watt and Joseph Black, the research workers of the world to determine the thermal properties of steam. Presented with warm affection and sincere admiration of the participants in the Third International Steam Table Conference. New York City, N. Y., September 19, 1934.'" — WALTER H. KILHAM, *Secretary*, 126 Newbury Street., Boston, Mass.

1890

The Secretary received an invitation from the president and council of the American Society of Mechanical Engineers to be present at the Calvin W. Rice lecture on "International Friendliness," delivered by Dr. John H. Finley at the auditorium of the Engineering Societies Building in New York. This lecture was in memory of our classmate, Calvin Rice, who for 28 years was Secretary of the society.

The following changes of address have been received: Eugene A. Holmes, 210 West Seventh Street, Los Angeles, Calif.;

1890 Continued

James Clark, Jr., 600 East Bergman Street, Louisville, Ky.; Captain Ernest H. Brownell, 20 Sea View Avenue, Newport, R. I. — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1891

Adelaide Bird died on October 20 and her sister, Harriet, sent us a notice from the Boston *Transcript*, written by Dr. McKeag, who was for many years at the head of the Department of Education at Wellesley and also President of Wilson College in Pennsylvania. "Adelaide Bird, who died suddenly at her home in Cambridge on October 20, was a woman of distinction as a scientist and as a college professor. She was trained in biology at the M.I.T., under the late Professor Sedgwick, and subsequently took a second degree from Radcliffe College.

"Almost all of her professional life was devoted to the development of the department of biology at Wilson College, Pa., where she held the position of professor. Many students trained in her laboratories went on to distinguished graduate work in the larger universities or entered medical schools. Professor Bird attained recognition as a leading authority on the flora of central Pennsylvania, and was sometimes called in by the State Department of Public Instruction to criticize the botanical material sent out to the schools of the State.

"Miss Bird's intellectual interests were not, however, confined to her scientific work, but included music, travel, general literature. Her vivid, strong personality made a lasting impression upon her colleagues and her students, and no member of the faculty of her college was more deservedly popular or more profoundly respected."

The Secretaries were the recipients of a beautiful and unusual Xmas greeting from Mrs. Whitney in memory of Clarence. The photograph shows their son, Lawrence Amos, in Arab costume, bought over two years ago in Tangier. He is standing in front of a city gate, prepared to give alms to the passer-by from his "chouchara". The photograph is colored and very attractive. The poem which accompanies the picture is entitled "Giving "and was written by Mrs. Whitney:

"Mohammed, proud descendant of the prophet
Stands by Bou Inania Gate, dispensing
Alms to all who ask, for charity
Is written in the Koran as far above
Faith and Love. In tattered burnouses
The crippled, blind and sick press close all day
Extending eager hands from grimy folds;
And when at last, chouchara empty, Mohammed
Pauses, with grave, dark eyes and pitying smile
He murmurs, 'I pray that you forgive me, brother!' "

Clarence was one of Hartford's outstanding citizens, most able, kind, and generous. His wife's tribute to his "charity" is fully appreciated by many of us.

A Christmas greeting from Ambrose Walker says they are leaving in a few days for the South. — The Fiskes and Hatches went to Cohasset not long ago for a call on Barney and found him on the piazza watching the passers-by. Other recent visitors were Morrill Ryder and one of his boys, and Harry Cole. Barney was looking fine and his arm seems in good shape again.

George Hooper writes of a visit from Birks in October, the latter being in California for his daughter's wedding. Birks has recently been in France and England and told George about recovery conditions in those countries, also his own country (Canada). George was all excited about the California election which is now a thing of the past. The possibility of having Sinclair elected Governor of California was too much for George. He says his son has become associated with some private bankers whose business is the financing of industrial enterprises.

A later letter from George reads as follows: "I am reminded by the arrival of the Review that there was one very interesting portion of our summer motoring about which I did not write you at length, for the simple reason that I was not aware, when I wrote, of the very dramatic history surrounding that particular highway; *i.e.* the road from Carson City, Nev., to Placerville, Calif., along the American River and Lake Tahoe.

"Being interested to know more of this, I secured from the Public Library a book called 'The Big Bonanza,' describing the discovery and working of the 'Comstock Lode' at Sun Mountain, Nev., later christened Virginia City.

"The route above described was the shortest one to any railroad and in its about 95 miles crossed two mountain ranges and one ridge of foothills. Even today there is hardly a three-mile stretch in it that is straight or level and numerous hairpin turns remain. The grades are being reduced, but when seven years ago I first went over this there were several of 10%. What the natural difficulties were in the '50's and '60's it is not easy to visualize and yet over this road by animal power went all of the supplies, except lumber, which went into the production of the nearly one-billion dollars' worth of gold and silver which that lode produced. It is said that traffic was so congested that if a teamster had to haul out of the line of traffic for any reason it would be from four to six hours before he could again find a place in line. During heavy rains and melting snow avalanches came down the steep canyon sides and either blocked the road or obliterated it, while in winter the snow lay from six feet to 20 feet deep over it. A 'Big Bonanza' was necessary to pay for the cost of all this.

"It appears also that this new wealth was of material assistance to the North in maintaining the War with the South and that the population attracted to and actually working in the mines was sufficient to enable Lincoln to constitute a State from the territory, and this gave him enough Congressional votes to carry the Emancipation Proclamation. A considerable armed struggle took place to save the territory for the Union, there having been many powerful Secessionists among the miners and business men. Nevada, therefore, with a total population less than that of this city (Pasadena) and commonly called the 'Nation's slag pile' has been important in the history of the country.

"Virginia City, the headquarters of the mining industry, was also the scene of Mark Twain's early newspaper experience. The anecdotes of his career show him as one whose humor was about the only pleasant characteristic which he possessed and even that often had rough edges. — The gold strike, of which you have perhaps recently read, at Mojave, about 100 miles north of here, is an extension of lodes formerly worked. The present high price of gold has made development work profitable and richer lodes have been found. It is all 'hard rock' ore, expensive to convert, but showing a good profit so long as the nation needs the new wealth."

Letters from Charlie and Mrs. Garrison tell of their "in-laws" and relations coming out to visit them, of their Thanksgiving party in Santa Barbara, and other family parties. Charlie had a little upset but is quite well again.

Here's one on the Secretary. Right next door to his New York office in the Graybar Building is the office of Robert Mitchell, patent lawyer. I was in my office one day when one of the men in our office called me to introduce me to a friend of his named Mitchell. It seems that Robert (perhaps I should now call him Bob) had asked for me without further explanation, and not having seen him since we were freshmen (or thereabouts), perhaps I can be forgiven for not recognizing him. We had lunch together and had a fine time talking "ancient history." He has seven grandchildren, three living children, "legal" residence in Connecticut, with a home in Mt. Vernon. He still looks husky and doesn't deny playing a fine game of golf, being one of the country's best for his age, having played in senior tournaments here and abroad, but regrets that he didn't start the game until after 40, which may or may not be too late. Some of you may remember that Mitchell was center rush on the famous M.I.T. team, captained by Herrich, which won the New England Championship with unbelievable scores. Mitchell told me Harvard only beat them by one point.

He promised to come to our forty-fifth if I would have the men labeled so he would know who they were. Says he has not kept up his Tech affiliations as he was only there a short time, but he admits that the Class of '91 is probably all right, and he sent in his dues as requested. I told him that there was no way in which he could get off our list whether he liked it or not, and that he might just as well get in the party, even if a little late. Jim Swan had called on him and I told him to get acquainted with him and some time we will have lunch or dinner together.

1891 Continued

Eli Bird wrote Barney recently and mentioned seeing Will Bassett only a short time before Will died. Also met a friend of Clarence Whitney's, who praised him as a "wonderful fellow." Eli speaks of the depression and the havoc it has raised in New York as elsewhere. He is still with the New York *Times*, but very little activity in his line.

Barney wrote our old friend Fred Wilson for news, and while Fred admits keeping busy, he says his efforts are "unprofitable." He gives a list of his affiliations which are noted herewith in case you are interested in these activities and also because we admire any one of our age who can hold down all these jobs and not get fired: President and Treasurer, J. T. Wilson and Son, Inc.; Vice-President, Boston Building Congress; Councillor, Society of Colonial Wars; Vice-President, Essex Trust Company; Moderator, Town of Nahant; Chairman Library Committee, Town of Nahant; Member of Trust Committee, Essex Trust Company; Secretary, Boston Coördinating Com.; Secretary, Boston Horticultural Club; President, Lynn Historical Society. He also mentions resuming the Presidency of the old Master Builders Association of Boston and tells of setting up his son in a Ford agency in Lynn.

A letter from George Atkinson, who now lives in Limington, Maine, tells of a snowstorm in early November with 18° F. He mentions going to Summit, N. J., to spend the winter with his daughter. — HENRY A. FISKE, *Secretary*, Grinnell Company, Inc., 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, *Assistant Secretary*, The Early Convalescent Home, Cohasset, Mass.

1896

Arthur Baldwin made a rather quick trip to the United States from Paris in December, and was able to make a short call on the Secretary on Saturday, December 8. He was due to sail back to Europe on December 21. Arthur was carrying his years well and seemed to be in a happy frame of mind, in spite of the heavy responsibilities of work and office that are on him in Paris. Incidentally, he pointed out that ocean travel has never been so cheap in years as at the present time. A person today can travel first class to Europe, spend a month there, and return to America, all for the sum of $500.

Gene Hultman is still hanging on as Police Commissioner of the City of Boston, but the question is how long this will continue, in view of the fact that the Honorable James M. Curley has been elected Governor of Massachusetts to take office January 1, 1935, and that Mr. Curley is reported by the newspapers to have expressed his sentiments about Hultman by the rather terse phrase "Honest but dumb."

Rear Admiral Charles Morris, S.C., U. S. N., retired, who died at Stamford, Conn., on October 13, 1934, was the fifth generation of a family that in an unbroken line for 150 years has furnished officers to the Army and Navy, starting with Charles Morris I who served in the Continental Army under Lafayette, and continuing successively through II, III, IV, and V. Charles Morris V was born August 15, 1873, at Fort Adams, Newport, R. I., son of Charles Morris IV and Gertrude (Missroom) Morris. After graduation he was with the New York Telephone Company until he entered the Pay Corps of the U. S. Navy in May, 1898. From that time on he served in various capacities in the Paymaster and Supply Corps department until he was created Paymaster General, with the rank of Rear Admiral, in 1925. He was retired in 1929, and came to live in Brookline, until last summer, when he moved to Connecticut. He served on many ships and at various Navy Yards. He took an active part in the Spanish American War and in the World War and after his retirement he served from time to time on selection boards and had maintained a contact and interest in the service. He is survived by his widow, Helen Richards Morris, a daughter, Mrs. Thomas Flynn, and a stepson, Matthew E. Hanna, Jr., of Shippan Point. Charlie was generally so located that it was impossible for him to attend alumni affairs and class reunions, but after his retirement we had him with us at our class reunion, and also saw more of him at alumni gatherings. He was the soul of geniality and we shall all miss him. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1900

The Reunion Committee has decided that the East Bay Lodge at Osterville, Cape Cod, is the best place to hold the Thirty-Fifth Reunion of the Class and the date is Friday, May 31, through Sunday, June 2. The Committee is hard at work on the details and shortly Allen will send a letter to the whole list.

Information has been received about four of the former students whose names were on the list of unknown addresses: Frank Carter is now in St. Petersburg, Fla.; Alexander Phillips, IV, now at the University Club, New York City; Charles S. Crane, IV, died June 7, 1899; and Fred H. Tillinghast, XI, died July 15, 1926.

Letter from Morris in Washington, D. C., says in part: "My one piece of news that may prove interesting to the others is that a project on which I have been working for some time has been taken up by the W. S. Lee Engineering Corporation of Washington, D. C., and Charlotte, N. C., and is being put in final shape for a real try under present conditions. The idea is to build five or six large but low and rambling apartment buildings on Arlington Ridge just across the river from the city on a site which I have owned for some time and which is 150 feet above the river and commands a sweeping view of the lower end of Washington, the parks, and the Potomac River. The buildings will aggregate about 2,600 rooms and will be of such unusual design that they will have no long corridors and the larger apartments will have two and three exposures. The plans are by Andrew J. Thomas, architect, of New York. There will be over 70 acres in the tract which will allow plenty of room for a swimming pool, tennis courts, playgrounds, and flower gardens; the building coverage being less than 20%. The Virginia Garden Apartments will be less than 15 minutes from the business center of the city through the Mall and over the new Memorial bridge. We hope to get going early in the spring and need the accommodations as the city is much overcrowded now. Hope to see you in June."

Part of a letter from Frank Chase follows: "I have personally been very busy. In November of last year I was appointed Chief Engineer of CWA of Illinois, upon the recommendation of a Committee of Engineers headed by Professor W. C. Huntington, head of the Civil Engineering College of the University of Illinois. The appointment was a splendid compliment and the method of selection was interesting because of the fact that the Governor of the State of Illinois called on a technical institution rather than political henchmen for the appointment of an engineer to a responsible position. We started out in November with a staff of three or four or five people and I speculated as to why I should have a stenographer as I did not have much for her to do (for a day or two). The organization grew by leaps and bounds until in March we had about 5,000 people in the administrative organization of 101 counties in the State. We bought about eight million dollars' worth of material and employed about one-quarter million men at the peak. I was made Director after a month or so and when a little later, due to a political mix-up, the Administrator resigned, I was appointed Administrator and carried on in that capacity until the latter part of June of this year. It was my privilege to see to it that 2,000 to 3,000 engineers and architects were employed in various activities and the opportunity of giving employment to many engineers was one of the finest things in connection with the work. We had a most remarkable organization and the entire structure was built around an engineering staff of very competent men. I know that the work was handled by this splendid organization of engineers with credit to each and every one of them. There was some criticism by newspapers and by interested and disinterested individuals. Every opportunity was accorded everyone to question and criticize and there was not one single case of incompetency or coercion proven in the work of the CWA in the State of Illinois. There were a few municipalities and other political subdivisions which did not play square and we put the screws on them.

"It was a most fascinating job; first, because of the need of fast work and also because of its magnitude which has seldom been equaled in the history of engineering in this country. For weeks I worked about 14 hours per day, scarcely ever saw my own office or my home and some of us had two relays of stenographers working from eight or nine in the morning until four in the afternoon and

1900 Continued

from four until quitting time — 10 or 11 o'clock. No code for engineers! (glad of it). We had splendid coöperation from the Administration Staff of the CWA in Washington, which was composed of able men — many of them engineers. Business tempo is accelerating slowly throughout this country and, in fact, throughout the world and I believe that the engineering profession especially will be fully employed in a few months. Give my best regards to the men whom you see and express my best wishes for them all." — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1903

During the year 1933, we wrote personal and informal letters to nearly 50 members of the class, asking for information as to their activities, progress, and history since graduation, hoping for bits of interesting news for the rest of the class. We received replies from only 14, which so discouraged us that we have not written one during the year 1934. However, with the approach of winter — it *is* winter in Boston when these words are being written — we have decided we will try again and write to some of the rest of the class who have not been heard from for many years.

Several men have stated in the past in response to question that they read the class news in The Review "when there is any" and we have been doing our best to see that there is some every other month, so don't be afraid to reply to the letter you get, relying on our promise not to print anything that may be embarrassing to anyone. Every member of the class is of interest to some other member; the mention of even a name awakens memories of past acquaintanceship.

In the death of Allan Winter Rowe, Secretary of '01, every other Class Secretary feels a distinct sense of loss. Those who knew him personally will miss seeing him at the Council meetings; those who read his class news with delight and profound admiration of his command of the English language will feel that one of the bright spots of the monthly issues of The Review has gone. The Secretaries of '03 extend their sympathy to the Class of '01 in the irreparable loss it has sustained. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 89 Broad Street, Boston, Mass.

1905

Your Secretary is back from Bermuda, rested and at it again. The three weeks' vacation came at just the right time and was thoroughly enjoyed. We can recommend the "Isles of Rest."

Any Course XIII man would be interested in the below-decks of the *Queen of Bermuda*. As we sat with the Chief Engineer, it was no trouble to arrange to get down. She has turbo-electric drive, General Electric Company, Ltd. The boiler room with oil-fired water tube boilers was almost deserted. The "engine room" resembled an industrial power plant, with many additional auxiliaries, all crowded into too small a space. But she was doing 18½ with the main motors (and propellers) at 132, with no vibration except a little from the propellers. Didn't Peabo tell us that propeller vibration could never be eliminated?

The electric drive has brought a new rating into the engine room. The engineers have been brought up in the marine. The electricians came out of G.E. and are new to the sea. But they are very important on this ship.

Jim Barlow's, I, daughter Esther, a graduate of Connecticut College, is instructor of English and dramatic coach at Machias (Maine) Normal School. — Will Hall's, XIII, freshman band story should have gotten something from drum-major Bill Tuck, III, but hasn't. — Arthur Abbott, VI, has a young friend at Wesleyan whom he hopes we'll help when in trouble.

On December 7 the Connecticut Society of Civil Engineers visited Wesleyan for an inspection tour. We were tickled to have Jim Newlands, XI, who runs a sanitary laboratory in Hartford and with whom we had had telephone contact, introduce himself. Unfortunately there was no chance to get really acquainted and his story will have to wait until we meet again. Both of us agreed that it would be soon. — Clarence Gage, II, is back in Milwaukee, still with the Bucyrus Erie Company. "I went to Evansville, December 25, 1919, was made superintendent there November 5, 1923, and transferred back to South Milwaukee on July 30, 1934, as Superintendent of the Finishing Shops. I have been with this company since February, 1911. My son, Robert, is a senior at Purdue taking up aeronautical engineering. I have been corresponding with Dr. Tryon to see if he can get a B.S. degree at M.I.T. in 1935, without much success yet. Took ill with arthritis a year ago and was pretty bad last winter and spring but much improved now."

A copy of *The Scoop*, which you can guess is the house organ, has a photograph that shows that Clarence and your Secretary are in the same light-weight class, and the following biography: "He graduated from the Massachusetts Institute of Technology in the course in mechanical engineering. The following year he taught at 'the Institute,' and followed that teaching experience with three and one-half very interesting years at the Panama Canal. When he came back to this country, he taught for about six months at the University of Villanova, at Villanova, Pa., and from this college he went to the Ohio Steam Shovel and Dredge Company. He left that company to become connected with the Marion Steam Shovel Company, and joined the Bucyrus-Erie organization in 1911.

"His first job was draftsman, which was followed by a succession of other jobs — squad foreman in the Engineering Department, Chief Draftsman, engineer on shovels and dredges, representative of the Engineering Department at Evansville. In 1920 he became production engineer and in 1923 superintendent of the Evansville works. The proper greeting seems to be: 'Glad to see you back.'"

Charlie Dean, III, has moved from San Diego, where he located in '32, to Los Angeles, 605 South Normandie Street. — For more than 10 years Sumner Davenport, IV, was a practicing architect in Havana. Recently he connected with the Royal Bank of Canada, Montreal. — Ben Lindsly, III, is still (mid-December) in Washington, with the Petroleum Administrative Board. In November he was a witness before the House Committee investigating the oil industry. — Walter Gillett, V, missing for 15 years, is living at 18 Lawrence Avenue, West Orange, N. J.

According to his printed announcement, received through the Alumni Office, Jim Barnes, VI, is connected with the Air Conditioning Corporation, handling G. E. air-conditioning products, "Madison 1450, 6150 Second Boulevard." Whether this is Syracuse, Louisville, Albany, or Detroit you may guess, but we'll get the answer some way and tell you later.

Henry Ayers, VII, who moved in '34 from New York to Santa Ana, Calif., writes: "Not interested in frozen foods but quick-heated by a patented process. Have plants in Florida, Texas, and California packing Sun Dine grapefruit and orange juice. This Sun Dine juice is available in your locality. Try it and let me know how you like it."

The following appeared in a Boston paper in September: "Rev. Sidney Atmore Caine, XIII, for four years or more curate of the Church of the Advent on Brimmer Street, will begin his duties today as rector of St. Margaret's Church in Brighton, succeeding Rev. Albert C. Larned, whose poor health forced his resignation some time ago. Fr. Caine will officiate today at eight a.m. in a service of Holy Communion, followed at 11 by a Solemn Sung Eucharist, with a sermon by him. He will preach again in the evening at 7:30, in a service of evensong.

"Fr. Caine is a native of Kentucky and was graduated from Massachusetts Institute of Technology, in the School of Naval Architecture, before deciding to enter the ministry. He then was graduated from General Theological Seminary in New York City. He was ordained a deacon by Bishop Greer at the Cathedral of St. John the Divine in New York.

"He served first at St. Luke's Chapel of Trinity parish in New York City, later as curate at St. Clement's Church in Philadelphia, and as rector of St. Timothy's Church in Roxborough, near Philadelphia. He served in this position for 10 years and was called to the Church of the Advent in 1929. For four years also he has been serving as Secretary of the Catholic Congress of the National Episcopal Church."

Word has been received from the Alumni Office of the deaths of four classmates: Norwell H. Cobb in 1926, Charles R. Craig in 1932, James H. Rogers, VI, in 1914, and Alice Rohde, VII, in 1933. Cobb and Craig were with us for freshman year only, Rogers for the years '02–'04. None of them has maintained class affiliation. Miss Rohde, later Mrs.

1905 Continued

Harvey N. Davis, was a special student our senior year. Thence she went to Johns Hopkins, receiving her M.D. in 1910. She had a fellowship in research at the Johns Hopkins Medical School, was later pharmacologist. No information of recent years is available.

We wish to express our great sorrow at the passing of our distinguished fellow Class Secretary, Allan Rowe, '01. He had done so much for his class and for the Institute that it seems as though his place could not be filled. — ROSWELL DAVIS, *Secretary*, Wesleyan Station, Middletown, Conn. SIDNEY T. STRICKLAND, *Assistant Secretary*, 20 Newbury Street, Boston, Mass.

1907

On Friday evening, December 14, 1934, 20 members of the class, together with Horace S. Ford, Treasurer of the Institute and honorary member of our class, sat down for dinner in the very attractive so-called "Silver Room" at Walker Memorial in Cambridge, Mass. After a most excellent dinner, prepared and served by the dining service at the Institute, Bryant Nichols, presiding because of the unexpected sudden business trip which Alexander Macomber, our President, had to make to the Pacific Coast, presented Stuart C. Godfrey, one of our own members, who is now a lieutenant-colonel of engineers in the United States Army, located at the Army Base in Boston, in charge of military engineering operations in the First Corps Area, which embraces New England. Stuart told most entertainingly of his personal experiences since coming to Tech from Exeter in 1904, his appointment to West Point in 1905, and his graduation from there in 1909, including assignment early in his career to work on the Panama Canal, where he was in close contact with General Goethals and other great engineers; four years as instructor in mathematics at West Point; time on four different occasions at Fort Leavenworth, Kansas, army training school, the last time as instructor; work at Florence, Ala., in connection with the Muscle Shoals project, where he had occasion to talk personally with Mr. Henry Ford; activity at Memphis, Tenn., relating to flood control, where he was personally associated with ex-President Hoover, who was then Secretary of Commerce; fascinating years over-seas during the World War, where he held important posts; and a period ten years ago when he was in Boston as assistant district engineer; and then his present varied responsibilities and duties in charge of this New England area. He also spoke briefly of his hobby — work in "Cubbing," the junior Boy Scout movement among boys nine, ten, and 11 years old. He is in charge of this activity in Brookline, Mass., and is also Vice-Chairman of the National Committee. Stuart has a boy at Exeter who may go to Tech or to West Point in 1936, and his older daughter was married in September, 1934, and lives in California.

Then Horace Ford was presented, and after referring to the special attachment that he has for our class because of the fact that he is of the same age as ourselves, and because he knew many of us when we were students and before he ever dreamed of having any direct personal connection with Technology, he told in an interesting and instructive way of some of the facts pertaining to Institute finances, plant growth and future plans and needs, dormitory life and management, Walker Memorial activities, student financial aid, and provision for financial stability for faculty members and their families, whether their withdrawal from the teaching force be by reason of death, disability, voluntary retirement, or old age. In closing, Horace complimented the men present on their youthful appearance. He said he attended the Twenty-Fifth Reunion of the Class of 1909 last spring and that those men looked old enough to be our fathers! We urge the men of 1909 not to be angry with the Treasurer, on account of this remark, for no doubt Horace was simply displaying his well-known courtesy and diplomacy when he made it.

Besides our guest and Stuart Godfrey, the following men attended this very delightful gathering: Charlie Allen, of Allen-Squire Company, shoe manufacturers of Spencer, Mass.; Lawrie Allen, experimental consultant with United Shoe Machinery Company; Henry Alvord, head of civil engineering department at Northeastern University, Boston; William B. Coffin, architect, 120 Boylston Street, Boston; George Crane of Temple-Crane Company, contractors; Paul Cumings, of E. Stanley Wires Company, tiling, Boston; Tom Gould, civil engineer; Ralph Hudson, Professor of Electrical Engineering at M.I.T.; Ed Lee, engineer with New England Power Company; Milton MacGregor, teacher of mathematics in Boston Public Schools; Bryant Nichols, life, health, and accident insurance; O. L. Peabody (Peabo), chemical engineer; Bob Rand, sales manager of Kalman Steel Company; Don Robbins, of William H. Coburn and Co., investment counsel, Boston; Gilbert Small, of J. R. Worcester and Company, engineers; Ed Squire, associated with Charlie Allen in Spencer; Stanley Wires, associated with Paul Cumings as previously noted; Harold Wonson, executive with Commonwealth Shoe and Leather Company, Whitman, Mass.; and Oscar Starkweather, general contractor, of Needham, Mass.

In spite of Horace Ford's comment, above referred to, about the youthful appearance of this group, at least three of those present are grandfathers: Starkweather, the Secretary, and Henry Alvord who announced that he has a grandchild three months old. — Seymour Egan, who usually attends '07 gatherings but who couldn't make it this time, has a son who is a sophomore at Tech in Course XIII, a daughter who is a freshman at Manhattanville, New York City, a daughter at Elmhurst, an academy in Providence, R. I., and a younger son at school in Wakefield, Mass., where Egan lives. — Ed Lee announces that his second daughter, Carol, was married on September 22, 1934, to Ferdinand J. Mann, and is living in Burlington, Vt., where her husband is reporter and radio operator for the Burlington *Daily News*. Carol was in the Class of 1935 at Middlebury College, and her husband graduated from there in 1933. — Milton MacGregor has made a name for himself as a teacher of mathematics in secondary schools. Last May he was awarded a service key in Phi Delta Kappa, an honorary fraternity of "outstanding teachers." He has an A.M. at Boston University, received in 1929. Active in church work, he was elected deacon and clerk in First Baptist Church, Needham, in May, 1934. His son, Arthur, graduated from Dartmouth last June, "with distinction in his major subject," and is now taking a graduate course in forestry at Yale. — E. P. (Tucky) Noyes was married for the second time (his first wife having died several years ago) on November 24, 1934, to Miss Anne Browning Paton of Wellesley, Mass., in the Wellesley Congregational Church. Miss Paton is a graduate and former teacher at Katharine Gibbs School in Boston. The only bridal attendant was Tucky's seven-year-old daughter, Adele Wyman Noyes. Home address is 7 Dayton Street, Augusta, Maine. — Charlie Allen told us at our recent dinner that when he was in California on a business trip not long ago he called on J. J. (Johnnie) Thomas at his home in San Francisco. John's hobby is astronomy and he has a fine observatory with an excellent set of instruments, all of which he has made himself, in the side yard of his own property.

H. J. C. MacDonald has opened an office as consulting mining engineer at 30 Broad Street, New York City. From 1908 to 1920 he was mining engineer, mine superintendent, and finally chief engineer for the Granby Company in British Columbia. He was then in consulting work for three years in Vancouver, and from 1923 to 1926 geologist and chief engineer for the New York Oil Company at Casper, Wyo. From 1926 to 1928 he was in independent consulting work in Denver, after which he went to Russia where he was manager of mines for Bogomolstroy in the Urals. Later he was in France.

In the last issue we gave an address in Canada for Arthur Tylee. As the result of writing to him there, we received the following letter from 217 Southern Boulevard, West Palm Beach, Fla., under date of November 25: "Your letter of November 7 just forwarded to me. I joined the great army of the unemployed about a year ago — voluntarily — when the income from my daily labors had decreased below living expenses in Boston. Did a bit of motoring last winter looking over the U. S. A., including California and Florida. Liked the fishing so much down here that after a summer in Toronto Mrs. Tylee and I decided to come down again to save expenses and avoid the snow.

"Business appears now to be getting ready to resume operations, so I expect by next summer a job will catch up with me again — where I don't know — in the meantime both swimming and fishing are good. My best to the old gang."

1907 Continued

In the last Review appeared a few facts regarding Clarence Lamont. Since those notes were prepared we received an interesting personal letter from him from which we quote: "I certainly enjoyed your kind letter of the fifth and am glad the Alumni office gave you my new address (Allen T. Archer Company, 215 West Sixth Street, Los Angeles, Calif.). Yes, it has been a long time since we have contacted each other and much has happened in the world. As you remember, perhaps, in 1926 I left Boston for New York to take charge of one of the Insurance Organizations' offices. In July, 1929, having, as we thought, sufficient wherewithal to last a few years, Mrs. Lamont and I decided to trek West again. So in our covered wagon Lincoln, my younger son, a guest, Mrs. Lamont and I spent a leisurely month driving across the country, and an enjoyable time was had by all.

"Late 1929 took its toll and on January 1, 1932, I was indeed grateful to have a job and in every way but one find myself back where I was in January, 1912, 20 years ago. The experience of those 20 years was my only asset and it will be interesting to see how long it takes to 'beat back' again. With my present connection, I am sure that it is possible. At present my position is that of engineer with the firm, none better as to reputation, and I suppose I will gradually come to be a producer also.

"My two daughters are married and my older daughter has a daughter of her own, me a granddad, March 11, 1933. My older son, John, finished Lehigh in 1929 and is now assistant chief metallurgist for the Union Carbide and Carbon Company. Neither of the boys is married.

"Ben, the younger boy, has just returned here with Mrs. Lamont who spent the summer in the East, and I am trying to locate him in the insurance business (not life). I still like to swim and play golf, and look forward to doing both when the Townsend Bill is passed!

"Found Sam Coupal in town last week. We had lunch together and then Sam came out to the house Saturday afternoon to listen to the football game over the radio. During dinner and afterwards we held quite a reunion and it sure was good to see him. This will do for now, Bryant. Next time I might go into detail about the two barren years, worked in movie studio, in the loss department of a crooked insurance company, thought I had the world by the tail with frozen orange juice — and so on."

It was a treat to receive a personal letter in December from George Griffin, as it has been many years since we had heard anything from him. He is a civil and hydraulic engineer, living and carrying on his profession in Woods Hole, Mass.; as he puts it, "plugging away at a variety of things — water works, town survey, plans and specifications on private work, and so on, nothing startling but quite busy." He further writes, "I have a revived interest in M.I.T. since my oldest boy is a freshman there this year. If any of you have sons there, my boy would be glad to meet them. Gifford Griffin is the name, in Goodale 109." It would be a pleasant thing if any of you men who read this and who have sons at Tech would suggest to them that they look up young Griffin, and do what they can to make him feel at home. — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

The October number of the *Mining Journal* stated that G. A. Joslin has returned to his headquarters at Los Angeles, Calif., following an extended trip through Sonora and Sinaloa, Mexico. He expects to return to Sinaloa at an early date to open up one of the mines which he examined. — John Nickerson is the silk industry's representative on the textile work assignment board which is scheduled to make its report early in 1935. John is on leave of absence from Cheney Brothers while serving on the board.

Word has been received of the death of Plumer H. Smith. No details are available either as to the time or place. Smith was associated with the class only during the third year, in the Department of Civil Engineering. — Bert Comins' son, Paul, has been elected captain of the 1935 football team of Governor Dummer Academy. Paul has played guard for the past two years.

At the meeting of the Boston Society of Civil Engineers held on January 8, 1935, Arthur L. Shaw was one of the speakers on the subject of "Sewage Treatment and Some Structural Problems of Large Disposal Plants." His paper discussed the structural features in the design of such plants. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries:* PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1911

For his many 1911 friends, particularly among former athletes, and for myself personally I wish to pay tribute to the lasting memory of Dr. Allan Winter Rowe '01, who passed from our midst in early December. One of Nature's noblemen, he did more for Technology athletics than it seems humanly possible for one individual to accomplish; he was Secretary of his class, his notes being models of expression; he worked tirelessly in the interests of the Alumni Association — and all this, mind you, along with a busy life of countless hours spent on medical research of the highest value to mankind.

With much sorrow I record the sudden passing of Bob Stanley, II, who succumbed to serious hemorrhage at Winter Park, Fla., in late November, where he had gone with his wife and two youngsters, in an effort successfully to carry on his long fight for health. We have lost a splendid classmate, and have expressed sympathy to Mrs. Stanley.

These notes are being typed on Christmas Eve in Worcester, Mass., where Mrs. Denison, our three youngsters and I are spending Christmas with her sisters. Have just seen Hal Robinson, I, and he is so proud of the fact that he and Mrs. Robinson, the latter Wellesley '11, can now boast of a boy in the senior class at Norwich University, a girl who is one of three great-granddaughters now at Wellesley, and a boy in the freshman class of high school here. Hal and I, as you see, planned our sequence of sexes alike, but he beat me to the draw!

In early December, Carl Ell, I, Vice-President and Dean of Northeastern University, Boston, spoke before the Massachusetts Schoolmasters Club on "The Social Significance of the Coöperative Plan of Education."

From the Alumni Office we learn that Rudolph Emmel, III, is back from his long labors in the Gold Coast Colony, South Africa, and is at his parental home, Broad Cove Road, Hingham, Mass. We have written him requesting a story of his South African experiences, and hope to have it soon. — We also learn that Joe French, IV, has shifted from Concord, N. H., to 837-57th Street, Brooklyn, N. Y., and Vic Willis has returned to 404 Park Road, Webster Groves, Miss., from Trona, Calif., where he represented D. P. Robinson Company.

The dearth of letters from classmates continues and is most discouraging. As you read these notes, please be sure you keep that New Year's resolution to "write to Dennie." Happy and Prosperous New Year to you all! — ORVILLE B. DENSION, *Secretary*, 50 East Main Street, Yarmouth, Maine. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

1913

Unless members of the class are more confiding to the Secretary than they have been in the past, 1913 items in the class news section of The Review, will become more infrequent than they have been. In fact, they may become entirely extinct.

About all we have of interest are a few changes in address. Karl Briel, who formerly lived in Dorchester, now resides at Perkins Manor, Jamaica Plain. — A brief and belated report comes to our desk, that Walter P. Boardman, a non-graduate member of the class, died some time during 1933. — The present address of Albert C. Brown is Rock Island, Ill. — We have word that Norman Clark, X, has moved from Richmond, Va., to West New Brighton, Staten Island, N. Y. Zenas Crocker, one of the financial tycoons of the Class, has forsaken Boston and has taken up the life of a country gentleman at Oyster Harbors, Osterville, Mass. — A. C. Goodnow now makes his headquarters at 400 West Madison Street, Chicago, Ill. Lloyd Hechinger is now with one of the engineering divisions of the City of Boston, and has moved from Dorchester to Roxbury.

Edward Hurst has moved from West Newton to Fall River and has leased Arthur Hirst's house. — Commander H. P. LeClair has been transferred from Washington to the Naval War College at Newport, R. I.

1913 Continued

Culpepper, Va., is the new home of R. H. North, an architect, formerly living at Glen Ridge, N. J. — T. W. Pinnock now gives his address as Danvers, Mass.; he formerly lived in Salem. — R. A. Richards gives his new location as North Andover, Mass. Gordon H. Robb is a practicing architect and makes his headquarters at 234 Clarendon Street, Boston.

We saw Cross in the Institute buildings some time ago. His only news item was that Gene Macdonald's firm of consulting steel engineers had done a very commendable job on the new railroad bridge across the Cape Cod Canal. — Our general President, Bill Brewster, was at the last Alumni Council meeting. Owing to a very interesting and lengthy program, we did not have an opportunity to discuss class affairs. We also had a brief contact with Ken Hamilton, through his brother Leicester, who is on the Institute staff in chemistry. — ARTHUR L. TOWNSEND, *Secretary*, Room 3-435, M.I.T., Cambridge, Mass.

1914

Since Charlie Fiske has come back to take an active part in class affairs, times are decidedly looking up. The June reunion apparently was just a starter. On December 5 Charlie staged a dinner in New York at which the attendance was 32! Buck Dorrance, George Whitwell, and Dave Gould came over from Philadelphia, Art Peaslee down from Hartford, Roy Parsell from New Haven, your Secretary from Boston, to say nothing of the hardy New Jersey commuters.

The reunion was the principal topic of discussion, particularly since Herman Affel showed the fine movies he took of that event and donated to the class, which are now available to any '14 group. Your Secretary was able to announce that thanks to the fact that many who helped organize the reunion contributed any expenses they occasioned, together with other donations, such as paper for stationery by Dawson, special rates on printing by Fox, and contribution of entertainment features by President Dorrance, the cost to the class exchequer of the reunion was just zero. He was unable, however, to report that a majority of the class had sent in a dollar or two for dues to carry on the work for the next five years. The books for class dues subscriptions are still open!

Those attending this most successful dinner were: H. A. Affel, Roswell Barratt, H. N. Calver, Alden Crankshaw, Ross Dickson, A. C. Dorrance, T. J. Duffield, L. D. Faunce, C. P. Fiske, C. E. Fox, D. F. Gould, Herbert H. Hall, Oliver C. Hall, J. W. Hines, W. H. Leathers, D. H. N. Mayo, A. W. Mudge, C. H. Ober, P. B. Owen, Roy Parsell, A. F. Peaslee, W. H. Price, Benjamin T. Rauber, H. B. Richmond, T. B. Richey, W. A. Simpson, F. S. Somerby, S. J. Spitz, R. V. Townend, William Warren, E. C. Wente, G. E. Whitwell, and Louis Wilson.

One most pleasant surprise at the dinner was to have present Commander Tom Richey, U.S.N. Richey has been stationed at various yards on ship construction work and has never before been able to get away for a meeting. Now he is at the Brooklyn Navy Yard and hopes to take an active part in class affairs.

These meetings in New York and Boston often tend to make us forget that throughout the country other classmates are taking an active part in Alumni affairs. Several have held office in the various local clubs. At the present time '14 men are presidents of three clubs. They are George E. Whitwell of the Philadelphia Club, Charles H. Chatfield of the Hartford Club, and C. S. Hsin of the Peiping Club. Malcolm C. Mackenzie is Secretary of the New Hampshire Club. Then we find on the list of Honorary Secretaries of Technology: Ray P. Dinsmore of Akron, Charles F. Thompson of El Paso, Percy McCullough of Lancashire, England, and Werner T. Schaurte of Rhein, Germany. On the Alumni Council are Harold S. Wilkins, Chester A. Corney, Leicester F. Hamilton, Ernest C. Crocker, and your Secretary.

L. W. Burnham has moved up a notch, and his broad shoulders are now adorned with golden oak leaves. It is now Major Burnham, U.S.M.C. Although still stationed at the Naval Ammunition Depot at Hawthorne, Nev., Burnham expects to come east soon to Quantico, Va.

The depression is over! Vital statistics again appear. Witness the arrival of Arthur H. Ober on September 27, son of Chet Ober, and also a son on August 24 to Gus Miller. If there be other bashful fathers who have not reported, let them be heard!

There can be no concluding word of these notes without mention of the great loss to Technology of Allan Winter Rowe '01. To those of us who have had the sheer joy of serving with him on even one of the host of Technology groups to which he gave so generously of his time — yes, of his very life — he will ever remain an inspiration for our most genuine efforts. Always a helping guide and sincere friend of 1914, we mourn him as one of our own. — HAROLD B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

Whatever joys might have come with the New Year are more than offset by the sad and sorrowful passing of our good friend and classmate, Eddie L. Fonseca, VI. Eddie was admitted to the Orange Memorial Hospital at Orange, N. J., on the morning of December 6, 1934, and passed away during a tonsil operation the same morning.

Words fail me to describe properly the feelings of the entire class for Eddie, for his likable personality, his delightful sense of humor, and his class loyalty and spirit. I never saw much of Eddie as an undergraduate but have been very friendly with him in recent years. Everyone remembers him at our two big reunions and when I think of his enthusiasm for the coming Twentieth Reunion, I am deeply saddened that he will not be there. Our opening dinner will seem empty without his companionship. An example of Eddie's charming and delightful wit is the following letter he sent me with his class dues. Written on a piece of yellow copy paper, it is headed: "I have no engraved stationery. My Gawd, how you can cry bitter tears. I am almost tempted to send you $10. Anyhow, please accept the enclosed check and consider yourself lucky. Don't try to say you're not lucky because if you only knew what some of my creditors would say if I sent them a check, you'd believe me. When do you think you'll be down my way? You know, you have a standing invitation at the old homestead. I sincerely hope your business is progressing profitably and that you are, so to speak, 'again in the bucks.' While I don't think I'll have any particular difficulty making out my next income tax return, I am still eating three meals a day and keeping shoes and stockings on the little kiddies' feet."

Ed leaves his widow and two splendid young sons who live at 3 Clonover Road, West Orange, N. J. To them the class has sent an expression of feeling for Eddie and sympathy for them. We shall miss Eddie in many ways, and we take pride in recalling his cheerful, enthusiastic, and loyal devotion and service to our class. I hope Ed's family will find comfort in the recollection of his honorable career.

It is only fitting that we omit all other class news this month and leave this issue as a memorial, in these records, to Eddie's memory. — AZEL W. MACK, *Secretary*, 72 Charles Street, Malden, Mass.

1916

Charles L. Foote is now a member of the corporation, Sherwood, Inc., 10 High Street, Boston, a concern that has existed for about a year, engaged in merchandising a special type of illuminated sign for use in stores for advertising purposes. I believe that they specialize also on commercial moving pictures as sales and advertising aids. — Joseph W. Barker, Dean of Engineering at Columbia University, expects to spend most of December and January on a trip in the interests of the National Research Council, going all the way to the Coast.

Ed Weissbach as usual can be depended upon for news. I was pleased to receive the following letter from him recently: "Did you see the article in June, 1934, *Food Industries* entitled 'Slashing Fuel Costs' by J. B. Carr, President and General Manager of the J. B. Carr Biscuit Company, Wilkes-Barre, Pa.? If not, it is news, as is also the following from *Food Industries*, October, 1934, p. 474: 'J. B. Carr . . . has taken over a majority stock interest in Thomas and Clarke, Peoria, Ill., and has sent W. C. Evans, former assistant sales manager to Peoria as assistant general manager.' Jap Carr has gone a long way since he, Johnny Ingle, Hal Gray, and I worked in the crude rubber department in Goodyear at Akron. None of our class is left there now, for Johnny is in Singapore, and Flip Fleming with Goodyear in Los Angeles. Both Flip and Johnny could give you a

1916 Continued

travelogue if they would ever write. For my own part, I have no news to offer, except that after a year in Pittsburgh on the sales force, I am back again in Camden."

Santa Claussen has just written your Secretary that he does not find time to attend Alumni Council meetings and has tendered his resignation as Class Representative. I did my best to prevent him, but he was adamant, and the resignation has finally been accepted with regrets. Your Secretary has been appointed in his place. Santa reports that his business takes him to New York quite frequently, also that Tom Little has just completed a western trip in the interests of Bemis Bag, visiting their many branches. While in Omaha he had a pleasurable visit with Al Clark. — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass.

1917

In the passing of Allan Winter Rowe '01, the Class of 1917 has lost a staunch friend who, as an Honorary Member had joined with us on sundry reunion occasions. The great loss felt by all the Alumni was felt with particular keenness by those members of the Class who had been privileged to enjoy occasional contact and companionship with him. It was in appreciation of his effort in behalf of the Institute in one of his multitudinous activities that the officers of the Class recently circulated a letter asking for a contribution for the special undergraduate Athletic Fund annually collected by Dr. Rowe. It is at this time gratifying to know that the percentage of those who returned the small contribution suggested was sufficient to show recognition and appreciation of his work.

A note from Professor Locke tells us that Lewis W. Douglas recently returned from Europe and Financial Services, a bit more recently, announced that he had joined the American Cyanamid Company as Vice-President and Director. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

These musings are being articulated in the chill and cheerless dawn of the morning after Christmas. Such an inauspicious time, yet the powers that be have sent forth the edict that nine a.m., on December 26, is the appointed hour.

Judging by the bales of address changes with which the Alumni Office persistently attempts to inter our desk, the brethren are on the move. Reading from left to right: Willett Searles turns up at Box 624, Sidney, Mont.; Frank Travers is with the Dabney Johnston Oil Corporation, 3508 Atlantic Avenue, Long Beach, Calif.; Stuart Caldwell, still vibrantly vertical, labors for the Evans Appliance Company, 253 Vinewood Avenue, Detroit; J. Alston Clark, former gone-but-not-forgotten man, is reported at 114 Sage Place, Ithaca, N. Y. (we strongly suspect a "Far Above Cayuga's Waters" connection); William E. Hilbert, sanitary engineer by academic training, is to be addressed care of the Bureau of Navigation, Washington, D. C.; Dr. John B. Nelson of biology is chasing microbes for the Rockefeller Institute for Medical Research at Princeton, N. J.; whereas Dr. Edward J. Scannell hangs out a shingle reading U.S.V.A. Facility No. 81, 130 West Kingsboro Road, New York, N. Y.; Phil Dinkins and Parry Kennard have both left the Jersey suburbs for Gotham apartments: Phil is at 2 Beekman Place, and Parry at 150 East 54th Street. The new addresses which appeal to the fecundity of our imagination, however, are those of John Bache-Wiig, who is ERA Area Superintendent at Calais, Maine, and Donald Clark, who is in Belfast, Maine.

It was our glowing and precious opportunity to deliver an address on "The Art of Human Relations" (fancy that!) at Colby College early in December, wherefore Maine has quite captivated us. Indeed, the verb shows a certain delicious restraint. We were invited to talk one hour; what with questions and one thing or another, we talked three-and-a-half hours. Even so interminable an orgy failed to quench the matchless courtesy of Colby and its Registrar (Elmer C. Warren '26). We are invited for a return bout!

Post No. 73 of the American Legion breaks forth with a little publication called *The Legionnaire*. Its December issue is brave with ribbons and green ink, bloated with paid advertisements, but both ornamented and honored by the name of its virulently beneficent editor, Malcolm Alfred Launcelot Eales — that indefatigable Santa Claus who sends us such cheering communications as the following: "Wie Geht's Herr Magounstein: Harold Weber tells me that in preparation for going into the junk business in Russia, you are now hiding behind a mess of foliage that gives the appearance of A. Lawrence Lowell peeping through the Christmas offering of the Fuller Brush Company. Well, if I tried that, the chances are the kids would say, 'Ma, Why does papa wear that cookie duster?' "

The new officers, Messrs. Smith (he of the pessimistic insurance agent's face), Fuller (he of the poker face), and Robertson (he of no particular face) staged a 1918 dinner at the Tech Club a couple of weeks ago, November 7 to be specific. Twelve or so men showed up, including Bill Foster, Russ Mumford, Clarence Fuller, Walt Robertson, Nat Krass, Granny Smith, Pete Sanger. During the dinner and far into the night, we sat around listening to Nat tell us of his trip the past summer to Russia. It was intensely interesting to all of us, especially to Fuller, who with his New England instinct for business, wanted to get the next boat to tell them about his new line of temperature-recording instruments.

Thanks also to Mal, comes the front page of the New York *Herald-Tribune* for December 14. Imagine our consternation unutterable, gradually transmuted into a glow of fraternal pride as we read: "L. Franklin van Zelm, real estate dealer in New Rochelle, who lives at 17 Wilmot Road, rescued a four-year-old girl who had fallen through the ice of a pond on his property just before noon today (December 13). Mr. van Zelm, who saw the child by the merest chance as he was looking from an upstairs window of his house, sprinted 75 yards to the pond, in his shirt sleeves, and acted as his own ice breaker as he waded, scrambled, and swam 40 feet through the cold water to reach her. . . .

"Mr. van Zelm owns 12 mallard ducks, of which he is very fond. Recently he took them to a sanctuary to protect them from the bitter weather. He saw the dark spot in a patch of broken ice and thought for a moment it might be a homesick mallard come back to the pond. Then he shouted to his wife: 'Some one's fallen in the pond!'

"After he brought the child back to the house he telephoned to New Rochelle police headquarters for doctors and an emergency squad. Nancy was unconscious when he brought her in, so Mrs. van Zelm and a friend rolled her across a clothes hamper. Then they applied methods of artificial respiration. When the police arrived, an inhalator was used on Nancy until she was breathing normally. She was taken to New Rochelle Hospital, where her condition today was reported as good.

"Mr. van Zelm, a former cartoonist for *The Evening World* and the King Features Syndicate, was quite hoarse tonight and would not leave the vicinity of his own fireplace, even to accept congratulations of the neighbors." — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

A meeting of the Fifteenth Reunion Committee was held yesterday in Boston. Chairman Abbott presided and the members of the committee in attendance were Ken Akers, Perc Bugbee, Buck Clark, Bud Cofren, Jim Gibson, and the Secretary. Ed Ryer and Bob Patterson are on the committee but were unable to attend. A very enthusiastic meeting took place and preliminary plans look very promising for the best reunion yet. The Norwich Inn, Norwich, Conn., has been selected as the reunion headquarters. This is a delightful inn in a wonderful location. It has an 18-hole golf course and facilities for all other outdoor and indoor sports. It is less than three hours from Boston by road and the same from New York. Rates are very reasonable. The Reunion will be held the same week as the All-Technology Reunion and will start late on a Friday and continue until Sunday afternoon. Handsome prizes for golf and other activities are being provided. Your committee will appreciate your comments and suggestions. Please write to Norris G. Abbott, Manufacturers Mutual Fire Insurance Company, 815 Grosvenor Building, Providence, R. I.

A letter from Paris brings welcome news from K. B. White. "K. B." is chief staff engineer for Wallace Clark and Company, an organization of consulting man-

1920 Continued

agement engineers that is helping European manufacturers to take advantage of American management methods. As "K. B." says, "Course XV stuff translated into any number of languages." I quote still further from his letter: "Happily, our business has been and continues to be flourishing and I assure you that the American idea about the more leisurely life on the Continent is just a pleasant myth. We work in most of the countries in Europe and it has been very interesting indeed to watch the political developments in their industrial aspects. I am still single and see no special reason for changing my ideas on the subject. I have an apartment in Paris that dates way back to the good old days when rooms had space and height. I shall not be back for the Fifteenth Reunion. In fact, I would rather not think of being 15 years out. The annual visits of some truck loads of students, under the auspices of Professor Schell, have kept us from losing touch entirely with M.I.T. I should surely be pleased to see anyone who happens along. My address is Wallace Clark and Company, 25 Avenue Victor Emanual 3rd."

By strange coincidence I received from South America, almost in the same mail, reports of new life and tragic death. Our popular and well-known classmate, A. A. Brown, sends an attractive announcement of the birth of Irving James Brown, October 19. The postmark is from Parral, Chihuahua, Mexico. The other is from the wife of Francisco Lobos, from Santiago, Chile. Francisco was murdered by the foreman of the ranch he worked on in the Argentine, on the 6th of October. Mrs. Lobos is left with six small children — three boys and three girls, all under ten. Her letter says, "There are few men who have no vices; he was one of them. He was a model husband and father. He who was so indispensable to us is gone."

Meylert Bruner is with the New York Port Authority, 111 Eighth Avenue, New York City. Bob Davis, VI, has moved to Grand Rapids, Mich., address 535 Fountain Street. Herbert Fairbanks, I, has moved to Glastonbury, Conn., 384 Keeney Street. Joe Gelders, X, is at the University of Alabama. George Green, II, may be reached at 215 Highland Avenue, Syracuse. Clement Hallinan, XV, is in Plainville, Conn., address 10 Strong Court. Mike Houghton has left Denver, Colo., and is now in Grantwood, N. J. Harry Kahn, X, may be reached at Ravine Drive, Matawan, N. J. Bill Lloyd's, I, new address is 3408 Greenway Street, Baltimore. Bill Meissner's, IV, new address is 35 Wilbur Avenue, Newark, N. J. (Wish you would write us, Bill.) Bob Rowe, IV, is with the Construction Department of Montgomery Ward Company, Oakland, Calif. Address Ted Sullivan, X, at 112 Broad Street, New York City; Ernest Bangratz, VI, at 800 Wood Street, Wilkinsburg, Pa.; Austin Frey, I, at 439 High Street, Bethlehem, Pa. Don Graves is with Knowlton and Stone Company, Keene, N. H. Charles Packard, VII, has become a professor at the University of Maine at Orono. Bill Preston has been located in Guayama, Porto Rico. Oscar Young, IV, is with the Tennessee Public Service Company, Knoxville, Tenn. Arthur Rouse, IV, is at 4 Park Terrace, Ludlow, Mass.; Dean Willey, II, at 1145 Chapel Street, New Haven.

Hope we'll hear from you about the reunion. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

On a recent trip to New York, Ray and Mrs. St. Laurent were hosts to your Assistant Secretary and Mrs. Clarke at dinner. Following a sumptuous repast which included the Scandinavian, the TOBCS (Twenty-One Board of Class Secretaries to you New Dealers) went into executive session. Chief among its activities was the formal transfer by the traveling news sleuth (guess who!) of his latest array of Winchellisms to the partner who punches them on copy paper in his inimitable (thanks, Mrs. Thomas!) hunt-system style. Now let's look at the record.

Bob Dolle is first on the notes and is reported as continuing his operation of the Lakeview Farm producing goldfish and aquatic plants, located on Colerain Pike, Mt. Airy, Cincinnati, Ohio. We have always thought Bob should be nominated for the distinction of having the most unique occupation to be found in Technology records. He is still a bachelor and we hope he has fully recovered from the severe attacks of arthritis of a few years ago.

George Dandrow is with Johns-Manville in New York. — Freddie Binns is with the Virginia Smelting Company, Boston, and lives at 143 Brook Street, Wollaston. — Harold Dennison of the Bradford Company, Quincy, also owns the Dennison Airport at Atlantic, Mass. — Abe Orlinger is a patent attorney with offices at 2914 Chrysler Building, New York. Abe is married and has a daughter. — Morris Hart is reported as being with his brother in the Hart Company, New York, manufacturers of lacquers. — Joe Lurie is with the W. S. Libbey Company, of Lewiston, Me. Joe is married and has a daughter.

Dwight E. Stagg is office manager and credit manager for the American Tube and Stamping Company, Bridgeport, Conn. He is married and has a boy and a girl. — From Pittsburgh comes the news that Art Skilling, of 320 Pennsylvania Boulevard, is in the real estate department of the Socony Vacuum Company. — Art Turner is at Perth Amboy, N. J., with the Carborundum Company. — Ray ran into Bill Freeman on the *Century*. Bill is with the Western Foundation Company and does a good deal of traveling. The family, which includes a boy of eight and a girl of four, is in Boston.

J. R. Cudworth is director of the State Mine Experiment Station, School of Mines of the College of Engineering, University of Alabama, located at University, Ala. — A. G. Wakeman is mill manager of the Fox River Paper Company, Appleton, Wis., where he has been located for the past eight years.

Does anybody know the present addresses of the following members of the Class, or through what channels they can be reached? If so, please notify your Assistant Secretary promptly: SidneyFeatherman, Frederick M. Gahagan, Curtiss T. Gardner, Hunter E. Gardner, Lawrence E. Harmon, Jr., Norman W. Hunter, Charles W. Maloney, Lt. David A. Newcomer, Olin W. Scurlock, John L. Weston.

Don't forget to send in your data for the Register of Former Students — also a line to your secretaries. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1923

The New York Club of 1923 held a meeting on December 3. I have the following account from Pete Pennypacker: "Present were Walt Marder, Ted Carpenter, Johnny Sands, Lem Tremaine, F. P. Squibb, Dick Kleinberger, Al Pyle, Shorty Chamberlain, Bob Shaw, Bill Lutz, Miles Pennybacker, Jack Keck, and Pete Pennypacker. The following officers were elected for the coming year: President, Walt Marder; Vice President, Ted Carpenter; Secretary, Lem Tremaine; and Treasurer, Al Pyle.

"It was the consensus of opinion that a dance should be held late in January or early in February and F. P. Squibb was put in charge of making arrangements for this affair. Following the business meeting a tour of the Museum of Science and Industry was held. Bob Shaw, as you know, is the general Mogul of this museum and the boys greatly enjoyed the opportunity of having everything work for their special amusement. Bob had a difficult time in prying the group of inquisitive engineers loose from the many forms of scientific entertainment furnished. We all had a very enjoyable time and considered this one of the best evenings we have spent together." Then, as an afterthought, Pete comments, "We are wondering when Bob Shaw will be added to the museum as the outstanding exhibit."

Pete continues: "It is my sad duty to report the death of Steve Miller. Steve was attending a party at which a treasure hunt was held and in the enthusiasm of the chase he fell from the loft of a barn suffering severe injuries of the head. He died a week later. Steve was one of the most active members of our New York group and his death is a great loss to all of us. As you may remember, Steve was one of the best swimmers the Institute ever turned out. — Squibby reported that he had seen Red Abbott this summer and that Red is now general manager of the Homelight Company, Port Chester, N. Y."

I learn from a printed announcement of the Columbia Steel Company, subsidiary of the U. S. Steel Corporation, San Francisco, that Frosty Harmon, X, is now Assistant General Manager of Sales of that organization.

1923 Continued

Harry J. Paletz, II, writes, "After working on the Holland Tunnel for five years, and three years on the Fulton Street Tunnel under the East River in New York City, I have been for the past three-and-one-half years superintendent of construction for the Board of Public Utility Commissioners, State of New Jersey. I am at present located in Atlantic City on grade-crossing eliminations and the construction of a Union Station as the representative of the above commission."

Lieutenant-Colonel Robert Sears is now Ordnance Officer of the 1st Corps Area. His office at the Army Base, Boston, he says, is always open house for anyone connected with Technology. Previously he has been at Aberdeen Proving Ground in Maryland in charge of automotive testing. — Russell W. Conant, VIII, reports that he came East this summer on leave of absence from the Technicolor Motion Picture Corporation, with which he has been associated for some time. He recently returned to Hollywood, and is back on the job again with the same outfit.

I have a very newsy letter from M. E. Parker, VII, who is located in Danville, Ill., as technologist in charge of the Danville Branch Laboratory of the Research Laboratories of the National Dairy Products Corporation. He writes, "Enclosed is the announcement of an address delivered by P. L. Coleman, XV, to our Kiwanis Club here in Danville. Phil, who has established a reputation (and well earned) as a powerful speaker, is rapidly becoming known in the Middle West as 'Power and Light' Coleman. If you have any civic clubs that want good speakers, contact Phil Coleman, care of the Dayton Power and Light Corporation, Dayton, Ohio." The enclosed announcement says of "P. L.": "As a keen student of business in general our speaker has visited 20 states and three provinces in Canada the past summer. He met and interviewed prominent men in business and finance. The subject of his address is 'The Adventures of a Roving Sales-Engineer.'"

With respect to himself, Parker goes on to say: "My work extends over the U. S. from Canada to the Gulf, and east from the seaboard to Omaha, Neb., and Salina, Kansas. I occasionally get East to New York and recently had the pleasure of bending an elbow with Stubby Griswold, VII, who sits in majesty in the Chrysler Building directing the production destinies of Zonite Corporation. I see Phil Riley, VII, in Cleveland on occasional trips." — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1924

Somewhat belatedly we call to mind our Tenth Annual Reunion. The months slip by so fast that it hardly seems eight months ago. Today we are in the midst of a cold winter, and I look back with pleasure to a sunshiny day at Marblehead. Even so it was none too warm at night, as I can remember the welcome of a fire in the open fireplace. Of course, the reunion was held at the Corinthian Yacht Club again. There were as many present as before; I believe the high spot was 72 at our big Saturday night banquet. And the time had by all was just as good. In one respect the ten-year affair excelled our five-year one: the refreshments were much better, doubtless due to the absence of too much and too many bartending. Real old Croft Ale, a popular brand in the East, was furnished gratis by Bill Croft. And there was a constant supply of other drinks with more of a spirit foundation.

A lunch at Walker on Friday started the affair off. Your Secretary was not present so can give you no details of the lunch or the reception at Dr. Compton's. The lunch was reported to me as a fine start and the reception most pleasant. From the Institute, exodus was to the Corinthian for dinner. Your Secretary arrived Friday night and after some difficulty obtained a room. The difficulty arose over the scarcity of rooms. I would not have you believe that it had any connection with Greg Shea, the financial manager, as it was still quite early in the evening. One group was found around the fire and a larger group in the game room. Henry Shore was entertaining when I arrived, although later the talk turned to serious items, such as politics. Still later that night, about three I should say, fire drill was conducted. A fire company was rapidly formed and the fire hose tested out to be certain that it would reach to every room. I am able to report that it actually did reach to every room except "F," occupied by the Secretary. I escaped, apparently because of the first difficulty in getting a room, for I was supposed, at least on Greg Shea's record, to be in room "E."

On the next day, golf and tennis were played but many did not elect to go from the club as those sports required and remained to walk around the peninsula, play horseshoes, or playground ball. The playground ball game ended in about the fourth inning when the other side had been swamped by a score of 24–2. The boat ride, a feature of our reunions, was enjoyed under a quicker sea than it had been five years ago.

The banquet was the climax, with many of the fellows who couldn't make other events showing up for that. Speeches were noted by their absence and in the absence of any class business to transact that was passed by unnoticed. The table set for the banquet was full with the result that Nip Marsh and I had to sit at a table with room for seven. But we were not alone for long as recruits came over from the larger table and there were soon 14 of us. Breakfast Sunday morning was the last event and everyone seemed to leave very soon after it, but very well satisfied with the whole affair, with due credit to the ability of Bill Correale and Greg Shea.

And now for the accumulated news of the past few months. I heard at the reunion that Dick Starke has a young son. Dick is with the United States Trust. Otto K. Eitel has become manager of the largest hotel in the world, The Stevens in Chicago, having previously been assistant manager of the Hotel Astor. Shorty Manning is now back with Pontiac Motor Car Company as assistant chief engineer. Lieutenant Charlie Stodter has been relieved as an instructor at Fort Monmouth, N. J., and is now taking a course of instruction at the Academy of Motion Picture Arts and Sciences in Hollywood, Calif. Frank W. Garran, professor at Dartmouth, where he has been since 1929, has been appointed Dean of Thayer School of Civil Engineering.

The engagement of Miss Elna Peterson of Waltham to Bertram B. Warren was announced last July. The engagement of Miss Jeanne Leonard of New York, a graduate of Miss Porter's School, to John B. Lewis was announced in October. Of weddings, there are three: On August 9 Miss Ruth Ida Robbins of Waban, Mass., was married to Robert P. Siskind. On November 3 Miss Mona Beatrice McWilliams of Watertown, Mass., was married to Robert D. Foster. Their address is now 15 Ives Street, Beverly, Mass. And on October 1 Miss Rosalie Frances Haben, a graduate of Forsyth and who until then had been a dental hygienist for the Travelers Insurance Company, became Mrs. Harold G. Donovan, and we are now at the address appended. — H. G. DONOVAN, *General Secretary*, 140 Maplewood Avenue, West Hartford, Conn.

1925

We plan to have our Tenth Reunion on Saturday and Sunday, June 1 and 2, so as to fit in with the general Alumni Day exercises on Monday, June 3. You will hear more about this by mail during the late winter and spring; plan to reserve the dates, and if you have not filed your latest address, please do so at once, either with me or the Alumni Association. — HOLLIS F. WARE, *Acting Secretary*, 16 Smith Avenue, Reading, Mass. HENRY V. CUNNINGHAM, *Secretary*, 43 Chestnut Street, Boston, Mass.

COURSE I

Edwin Erickson is now working for the City of Newark, N. J., as assistant engineer in the water department. After leaving Tech, he and Maurice Frost arrived in Pennsylvania just in time to run into a big program of concrete highway construction. This kept him busy for a couple of years and then he went to work for the American Bridge Company for a short time. He next went to work in Newark, where he spent another couple of years, this time building a subway. When that was done he was transferred to the water department. He is married and is the father of two boys. He says he hopes that if any of the fellows are around that way they will drop in either at room 101, City Hall Annex, or at his home address, 45 Oakland Terrace, Newark.

Arthur Odegard sent a long and interesting letter which I will endeavor to condense without damaging too much. He reports that his career has not been meteoric but simply "methodically progressive." He went to work the day he graduated and has been working ever

1925 Continued

since. A lot of the rest of us would like to be able to say that. He traveled for two years with the Aberthaw Construction Company. Then it was that he met his wife and his traveling days came to an end. He got a job working for the engineering department of the City of Lynn. His work there was the regular routine work of chief of party and field engineer. When, a little later, he found that he could transfer without any difficulty to the State Highway Department, and do so to his decided advantage, he made the change. He is now working for the State Department of Public Works at 100 Nashua Street, and expects to continue there forever. That is, unless they continue to steal more of the gasoline tax for other things. Perhaps his present optimistic and rosy view of life can be attributed to the new addition to his family, over which he said he was ready to enthuse at length. He said he would spare me the details, however, other than merely to state that it was the best baby that ever lived. He gives his regards to all the boys. His present address is 405 K Street, South Boston. — KENNETH LUCAS, *Secretary*, 435 Franklin Street, Reading, Mass.

COURSE III AND XII

After five years of wandering about Europe, G.B. (Count) Blonsky and Mrs. Blonsky are back in the United States. They arrived here on November 15 and are now located in Westport, Conn., where the research laboratories of the Dorr Company are situated. It is hoped that more news about the Count's experiences during the past few years will appear in the near future, for he expects to visit his friends in Boston within the next month.

Ralph Ilsley obtained a position in Washington, D. C., following the completion of his work for the Doctorate in Geology last June and is now compiling and interpreting statistics concerning the mining and petroleum industries. — Jesse L. Maury has shifted base from Chicago to his old home town of Butte, Mont., and is now working as an engineer for his native state. — William T. Brown, Jr., dropped in at the Institute a short while ago. He has left the Westinghouse Lamp Company at Bloomfield, N. J., and at the last report was at home in Philadelphia. News regarding some of the other miners, metallurgists, and geologists of 1925 would be much appreciated. — F. L. FOSTER, *Secretary*, Room 6-202, M.I.T., Cambridge, Mass.

1926

Emerson W. Eddy, late of Philadelphia, is now with the Texas Gulf Sulphur Company, 75 East 45th Street, New York. — Carlton J. Everett is a little farther down the pike at H. L. Doherty and Company, 60 Wall Street. — Evidently Edgar B. Godley lives on a long street in Cleveland, for his address is 17540 Madison Avenue, Lakewood. — Julius B. Goldberg, who many of you know only as Jay, and whom all of us will recall as the class dramatist, is now residing in Worcester, Mass., at 44 Hawden Lane, Worcester. He is still in textile work with the Slater Company. — Clifton B. McFarland, long of Boston and its environs, has gone South for the winter, if not permanently. His address is 1506 Fair Street, Camden, S. C. — Richard W. Sherman, on the other hand, has gone North for the winter, if not longer, his present address being Bar Harbor, Maine. — Thomas J. Eaton, old Dorchesterfieldian, is now at 4 Summit Avenue, Amsterdam, N. Y. — Philip A. Hendie has slid from his mile-high elevation at Denver to St. Paul, Minn., where he doubtless has already become an ardent castigator of Minneapolis. — J. RHYNE KILLIAN, JR., *General Secretary*, 11-203, M.I.T., Cambridge, Mass.

1927

Weddings continue to be the main bits of news. Warren Smith, better known as "Rabbit," was married on October 24 to Miss Katherine May Godard in Mt. Lebanon, Pa. They are now living on Watson Street in Pittsburgh, *à la bohème*, where the door is open to all '27 men. Smith is the head of the cost department of Koppers Company. — On October 20 Jimmy Chirurg and Miss Virginia Low of Brockton were married in the Porter Congregational Church. Hank Steinbrenner came on from Cleveland to officiate as best man. The former Miss Low was graduated from Wellesley this past June. They will live at 27 Orient Avenue, Newton Centre.

At the instance of a recent business call at the A. C. Lawrence Leather Company, Peabody, your Assistant Secretary was referred to Mr. Burke, in charge of patent leather research and development. The Mr. Burke turned out to be Joe Burke, V, and the sales talk was Technology talk. Joe is still single and is living in Woburn. — We report for those in Chicago or visitors to that great city that the Fordyce Coburns are living at 7317 East Eno Avenue, Chicago, and that Dice is assistant superintendent of the Wisconsin Steel Company Coke plant.

We regret the need to report the following: Ramon Arias, who to us was Ray Arias, died on Sunday, November 11, as the result of an automobile accident in Charrera, Panama. Ray's car skidded on a narrow bridge near his farm as he was driving alone to Panama. To Mrs. Arias and their three small children, our very sincere sympathy is extended.

With the season of Christmas and New Year's so recently concluded, your Assistant Secretary believes there doubtless have been many informal reunions of portions of the Class of '27. Yea, verily, our wives have sent our Christmas cards and, mayhap, incidental bits of news which would be of interest to the class. If any births, marriages, divorces, jobs, new jobs, or new pastimes have been heard of, drop a line to your Assistant Secretary, who recommends that the interesting data be sent by the principal party personally for vague recollections of a New Year's party or meeting are often dangerous.

To wit, your scribe and Assistant Secretary wishes to dispel a rumor that he is beyond the postal limits of Uncle Sam, although he is now located at a new address noted below. The reason all foreign and domestic newspaper correspondents, NRA officials, and members of '27 must journey to Cambridge to see me is that in July last I became connected with The Gill Corporation in charge of sales. Associated with me is Paul H. Gill '30, who is President. We are engaged in selling special purpose catalysts, inhibitors, and anti-oxidants which are used to prevent rancidity, gumming, spontaneous combustion, and general aging decomposition of animal and vegetable oils used in textile, typewriter, lacquer, and coated fabric manufacture STOP In addition, we manufacture and sell a special treated water-proof, fire-resisting, mildew-proof duck for steamship and railroad service STOP — Now you punsters, Hibbert's Inhibitors may be justified, but I think I have gone to sufficient length to prove that the guy that started the rumor that I was selling salad oil and dress goods was no gentleman. Needless to say, Paul and I will be glad to see any members of the class when they are in town and promise to accept all invitations to lunch. — JOHN D. CRAWFORD, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. RAYMOND F. HIBBERT, *Assistant Secretary*, The Gill Corporation, 238 Main Street, Cambridge, Mass.

1929

As the clippings sent me have been destroyed, these notes will be comparatively limited in range, and will be more or less confined to the hope that you all enjoyed a very Merry Christmas and a Happy New Year's celebration.

The manner in which the newspaper announcements and so forth were destroyed will probably interest you, for practically all our Class records and files were destroyed at the same time. Between five and six o'clock on the morning of December 8, my house was completely gutted by fire. In spite of the loss of irreplaceable records and everything we had of value, my wife and I feel very fortunate in having escaped with our lives. While we slept, the fire gained considerable headway and it was only by waking to the realization that we were suffocating from an overwhelming concentration of coal gas and smoke, that we got out in time. By tying sheets together, I managed to get to the ground and placed a ladder to the window for my wife. We were forced to leave in such a hurry that we had not time to grab shoes or slippers or save a thing aside from the night clothing we had on, and I ripped my pajamas at that.

Things moved so fast around there that, in spite of the ice and snow on the ground and a temperature of below 20°, I ran around in my bare feet for more than a half hour before I woke up to the fact that my feet were cold. It took the fire department 38 minutes to get to the scene after the alarm was turned in, so you can

1929 Continued

readily see the reason for the complete loss. We'll have news of more general interest for the next issue of The Review. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

1933

We had another 1933 get-together down here a few days before writing these notes and a few new faces gave us something to write about.

Ed Goodridge was our speaker of the evening and brought equipment along to explain the workings of the sign flashers which Goodridge and Company are installing all over the city. Here's a bit of information I remembered hearing during the evening: Omar Somers is connected with the Anchor Cap and Closure Corporation in Long Island City. — Bob Clary has been trying various private ventures since leaving school, particularly in the field of aviation. — Prentiss Lobdell was over from Standard Oil of N. J., where he is doing a variety of work. — Slats McCutcheon is with the New England Fuel and Transport Company. — Roland Glenn is with Union Carbide in West Virginia. — Cal Mohr is with du Pont in Buffalo. — Ivor Morgan was over from Phelps Dodge in Elizabeth, N. J., where they are trying to make him muscle-bound. — Fred Roetting is with the Budd Company. — A line from James Wabasse, Jr., tells of his pointing to his M.D. at the Long Island College of Medicine this June. — Ed Coe is with Seaboard Metal. — Frank Vanucci is with Owens-Illinois Glass Company in Newark, Ohio. — Malcom Fleming is with U. S. Gypsum Company at the New Brighton Mill. — Bob Ripin writes that he is holding down a *good* job near Wheeling, Va., as the industrial engineer of a large toy manufacturer. — A last-minute arrival, an Xmas card from Emmie Norris, tells of his recent change for a better job with Davison Chemical in Baltimore. — Dick Fossett is in the production department at Procter and Gamble in Kansas City. — His address is 31 South 17th Street, Kansas City, Kansas.

Our Society Department crashes through with four wedding announcements: those of Doug Penning, Dan Murphy, Steve Rhodes, and Paul Petitmermet. The Class's best wishes to all of you. — GEORGE HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y.

COURSE VI-A

News, this month is, to say the least, "spotty." I wish that you fellows would, once in a while, when I don't drop you a line myself, drop me a post card, telling any news of yourselves, classmates, and coursemates. Would like to have this material by March 5, September 5, and December 5 at the latest. Write me care of my home address at the end of the notes. — John Sloat and Bob Winters are both working, but thousands of miles apart; John, on geophysical work in New Mexico, and Bob in the Apparatus Engineering Department of the Northern Electric Company. Another bull's-eye for those old N.E. ads in "Sparks"!

Received a very newsy letter from Charlie Alba, written in longhand, so he wouldn't wake his baby. He says: "I am working on the ERA Planning Board, in Arlington, doing drafting, and so on. — As to other members of the class: Bill Gray is working at RCA, Webster is still at General Radio Company, K. A. H. Smith is in Florida developing a static eliminator, and expects to be there for the winter. — Levinson went to England in September, got his Ph.D. at Tech last summer, you know, and is at Cambridge, studying mathematics, under the Redfield Proctor Fellowship." — JOHN F. LONGLEY, *Secretary*, 11 Courter Avenue, Maplewood, N. J.

COURSE XVI

Hello, Club Sixteen! As a few of our members have recently left the good old U.S.A., it behooves your Secretary to notify you all. Frank Der Yuen was the first to leave, boarding the *S.S. President Roosevelt* for China about the middle of September. He is to teach at a university, continue his studies, and work on various research projects. Sulo Paananen is the other globe trotter, sailing on November 17 for Finland. He intends to visit with relatives and may decide to reside there permanently, depending to a large extent on the opportunities available. To you both, the best of luck and success!

A. M. Patterson dropped in to visit in October. He is at present attending an aircraft school, taking a course in aircraft mechanics. By the way, in the last report, I stated that Ed Foster was working for Budd. By the time of printing, which is about a month after the writing of the notes, I found my information to be in error. Ed, according to latest reports, is working for Waco. You will be glad to hear that Jojo Alkazin '31 was recently employed in Rochester. He seems to have a very good position. Another fellow you may remember is Walter Skees, who left us in '31. After a western trip with Edward Asch '34, Skees returned east, taking work in psychology at the University of Pittsburgh. He served as assistant there for a while and is now psychologist at Eastern Penitentiary (Graterford), Philadelphia. What an aeronautical engineer! Clare Farr has moved from Philadelphia to Milford, N. H., where he is now employed by French and Heald. Bill Sheppard and Gus are still with Budd. Charlie MacNeil and wife visited Boston over Thanksgiving along with Curt Cummings '32. Charlie is still in Buffalo and looks as if he has no room for complaints. Ed Morris and your Secretary are still doing their best for the Institute, and both would like to have a little information regarding the Club. No hearee, no printee — so write! — GEORGE P. BENTLEY, *Secretary*, Room 33-406, M.I.T., Cambridge, Mass.

1934

Dick Bell has asked me to tell all of us that the Insurance Plan for our Class Gift to the Institute was well subscribed to, and is a credit to the Class of '34. Dick adds: "Times were undoubtedly bad, but everyone, without exception, made a sincere attempt to do his best . . . and, personally, I appreciated it." Another bit of official news reached here early this month in the form of the report of the Senior Week Committee. It is impossible to reprint it here in its entirety, so let it suffice to say that a net profit of $22.50 was made, which, divided by 21 men on the committee, entitled each to $1.08. Both Joe Seligman, Chairman of the Committee, and Jack Ballard, who was the Junior member and Treasurer, are to be congratulated for their efforts to put over Senior Week, and I feel certain that (even though the veil of time has cast a shadow over all that glorious week) all of us will agree that ours was the best Senior Week ever to be held at Tech.

The first letter on my pile comes from Professor Locke. He is one of my chief news hawks (all Course III, naturally). He writes: "Fred Barrett has secured a job with the Wickwire Spencer Steel people at Palmer, Mass., which is temporary, but he hopes it may develop into something permanent. I have not heard anything from Alder since he went on a mining job in Nevada. Malone comes in to see me every two or three weeks. He is at a CCC camp in West Cummington, near Pittsfield, Mass., but he has a pretty definite offer of a job in California after the first of the year. Rostartchuk bade us all goodbye recently and started on his return to Russia. McKay has a job with the Aluminum Company of America at Fairfield, Conn. Coe has been shifted by his employers and he is now to be addressed Seaboard Metal Corporation, North Arlington, N. J. Hooper is still on his job as private assistant here at M.I.T." Continuing with Course III, Ralph Geil is having one awful time in Rochester. He has not had a job since the end of November, but has been working out with a professional Indian lacrosse team. He doesn't think much of his chances of making the team, but those of us who saw him play at Tech certainly know that his hard checking and fearless fighting are just the things the professional game requires.

During my short stay at Macy's, I came across a few more Tech men. Win Reiss and George McCaughan both obtained jobs when I did. George was put to work selling guns in the sporting goods department, but left when a better job in his own field was offered him. Win, the Course IV-A man, was content to sell Lincoln Logs in the toy department. He is also continuing his studies by taking courses in free-hand drawing at his father's school here in New York. Dane Welles, who was with us through our Junior year, was recently advanced to floor superintendent. A lot of the boys came in to see us while we were working there, among them "Goof" Borger, who is now in the butter-and-egg business with his dad; Charlie Lucke, who will be back at Tech again in February; Larry Stein; Bud Pflanz '35; Ash Woodhall, who left after our Sophomore year; and Hank Christensen '36.

1934 Continued

A nice letter from Johnny Carey, and some extracts from one written by Mal Stevens to Wilbur Foote, have thrown some light on the doings of the six fellows down in Panama. Johnny says their are some 50 Tech men scattered throughout the Isthmus, ranging from '05 to '34. Chase, Ryder, and Stevens are on the Pacific side, while Eder, Murphy, and Carey are on the Atlantic side. Eder is working at the cold-storage plant, and Murphy and Carey are on the Gatun locks. To use Johnny's own words, "Chase is working with the Electrical Division, chasing telephone circuits all over the Isthmus, while Ryder is learning how to charge three times the State's price for repairing a car and still get away with it. Stevens is in charge of a group of negroes from the Municipal Division, whose chief function seems to be clearing up land-slides." Besides telling of the mild climate encountered, Johnny says that he and Murphy are being trained to be executives, and in that capacity they are not allowed to do any electrical or repair work (all the hard work is done by negroes). Both are qualified locomotive operators, but the last time they were called upon to do any operating was when they put the fleet through. Mal's explanation of how they got their jobs (contained in his letter to Foote) runs like this: "The Panama Canal officials decided that a little new blood injected into the various engineering divisions would be worthwhile; so the Assistant Engineer of Maintenance on the Canal, being a Tech man, turned to the school for six (promising?!) engineers. . . ." Besides repeating what I have already recorded above, Mal goes on to rave about the beautiful Pacific, the endless white sand beaches, and overhanging palm trees, so that we may begin to wonder whether he is on a job or a vacation. At any rate, Mal also says, "Three times a fellow has taken me crocodile hunting at night. The procedure is to paddle up a jungle stream and shine a flashlight along the banks. If there is a crocodile there, his eyes will show up bright red, like the reflector on the back of a bicycle. Then you move slowly to within 10 or 15 feet of the thing and let him have a .38 bullet just below and in back of the eye. I have shot two; missed three."

From another fellow far away from the goings-on here in the east comes word that the world has learned finally to appreciate his talents. I'm speaking of Manny Sayles, the "Omaha Cornhusker," who now holds a very promising position with the Bemis Bag Company, of Omaha, Boston, St. Louis, Indianapolis, and all points in all directions. Manny isn't sure of his exact status as yet, but is being taught about bags from A to Z. Being the only M.E. in the Omaha factory, he is carrying out designs for machine improvements there. "Shades of Professor Smith," says Manny, "I am having fun!"

George Wuestefeld writes to say that he was lucky in obtaining a job last spring with the American Brass Company, and has been at their Ansonia, Conn., branch since July 2. He is learning the business from the bottom, and after spending from six months to a year in and about the plants, he expects to go on the road for them. He is living in New Haven and commutes 13 miles daily to Ansonia. Besides Joe Seligman, Max Millard is the only other fellow of the '34 gang in New Haven. Max would have received his M.S. with us last June, but instead took a job that was offered to him last February by the American Steel and Wire Company. George closes by saying that he would appreciate my including these items in The Review, because it will prove that to get a job, it isn't "what you know, but who you know!"

Some tid-bits from Manchester, N. H. Johnny Salo writes of a job with a public utilities company, the forest-covered hills of the state, and of the beautiful women, also of the state (the liar!). — Ted Rimbach is now working for the Commonwealth of Massachusetts as a civil engineer and says he is enjoying the work. — George Fowles, if my memory serves me correctly, is with the electrolytic department of the Anaconda Copper Corporation.

Until now there have been no Course Secretaries who have submitted material for this monthly letter. Only recently Stan Knight asked if he might write up the doings of his own Course XIV. Besides Stan, Brad Ellenwood (XVII) is the only other Course Secretary of whom I know. If you fellows who have been appointed or elected to such a position will let me know, and then write me every few months, perhaps we could make this column a lot more interesting than it now is. If, in the meantime, there is no Secretary for your Course, perhaps some of you ambitious fellows will volunteer your services. I can't promise any recompense, except just a good time in finding out everything about your fellow classmates. Please write me if you're interested. And in keeping with all this, here is Stan's first contribution. Call it XIV, or what you will. And by the way, Stan can be reached at 55 Graves Avenue, Lynn, Mass.:

"Here are a few collected bits about our electrochemists. We graduated seven of them last June. Fortunately, none of them are idle at this time. 'Legs' Kawecki is all alone out in Port Huron, where he has made a low but promising start in the Beryllium Corporation of America. By now his apprenticeship should be over, his next step being the research department. Best and Neill, although not quite next door neighbors, still couldn't separate from each other too widely. Mert is in the 'bright lights' city, where he seems to find enough to do. Besides learning the fine points of patent prosecution during the day in a most imposing law office, he attends Fordham Law School in the evenings. 'Still, remembering the years at Tech,' he says, 'Pish and tush, it's just so much pink tea!' Georgie hangs out a little farther sou'west in Palmerton, Pa., where the New Jersey Zinc Company seems to find him useful. His work is interesting, colored with variety, and, needless to say, uplifting. How awestruck we become when we hear him speak so glibly of those *platinum-lined* furnaces! Rudy Churchill has been a hard fellow to get a line on. Our news about him is meagre. After a wonderful vacation for about ten weeks at the Ordnance Camp last summer, he was with the Union Carbon and Carbide for a while; but the last we heard, he was down in the Texas territory.

"There are three hangovers at Tech: Mooradian, Nashner, and myself. All of us are pursuing advanced degrees. I, still with hope, cling to electrochemistry; but Sid and Vic, with other ideas on the matter, are heading for M.S. degrees in physical metallurgy. Vic is studying recrystallization and such mysterious phenomena; Sid is having a devil of a time trying to pursuade nickel and aluminum to alloy homogeneously. I am trying to purify 99.987% copper. Now I know what the expression 'every little bit counts' means." — ROBERT C. BECKER, *General Secretary*, 43–20 30th Avenue, Long Island City, N. Y.

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